INCH-POUND
MIL-M-38510/371B
2 September 2004
SUPERSEDING
MIL-M-38510/371A
8 AUGUST 1986

#### MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, BIPOLAR, ADVANCED, LOW-POWER SCHOTTKY TTL, FLIP-FLOPS, MONOLITHIC SILICON

Inactive for new design after 8 July 1997

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product herein shall consist of this specification sheet and MIL-PRF 38535.

- 1. SCOPE
- 1.1 <u>Scope.</u> This specification covers the detail requirements for monolithic silicon, advanced, low-power Schottky TTL, flip flops, bistable logic microcircuits. Two product assurance classes and a choice of case outlines/lead finish are provided for each type and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.3).
  - 1.2 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-38535, and as specified herein.
  - 1.2.1 <u>Device types.</u> The device types are as follows:

Device type	<u>Circuit</u>
01	Dual D-type Flip-Flop with Clear and Preset
02	Dual J-K Flip-Flop with Clear and Preset
03	Dual J-K Flip-Flop with Clear and Preset
04	Octal D-type Flip-Flop with 3-State Outputs
05	Octal D-type Flip-Flop with 3-State Inverted Outputs
06	Dual 4-Bit D-Type Flip-Flop with Clear and 3-State Outputs
07	Dual 4-Bit D-Type Flip-Flop with Clear and 3-State Inverted
	Outputs

1.2.2 <u>Device class</u>. The device class is the product assurance level as defined in MIL-PRF-38535.

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAS, 3990 East Broad St., Columbus, OH 43218-3990, or emailed to bipolar@dscc.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at www.dodssp.daps.mil.

AMSC N/A FSC 5962

# 1.2.3 <u>Case outlines.</u> The case outlines are as designated in MIL-STD-1835 and as follows:

Descriptive designator	<u>Terminals</u>	Package style
GDFP5-F14 or CDFP6-F14 GDFP4-F14 GDIP1-T14 or CDIP2-T14 GDFP1-F14 or CDFP2-F14 GDIP1-T16 or CDIP2-T16 GDFP2-F16 or CDFP3-F16 GDFP2-F24 or CDFP3-F24 GDIP3-T24 or CDIP4-T24 GDIP1-T20 or CDIP2-T20 GDFP2-F20 or CDFP3-F20 CQCC1-N20 CQCC1-N28	14 14 14 14 16 16 24 24 20 20 20	Flat pack Flat pack Dual-in-line Flat pack Dual-in-line Flat pack Flat pack Flat pack dual-in-line package dual-in-line package Flat pack Square leadless chip carrier Square leadless chip carrier
m ratings.		
dissipation, $(P_D)$ $\underline{1}/:$ and $02$	MIL-STD-1835)	-1.5 V dc at -18 mA to +7.0 V dc -65° to +150°C 11 mW 13 mW 19 mW 22 mW 300°C
perating conditions.		
el input voltage ( $V_{IH}$ )		2.0 V dc 0.8 V dc -55 °C to +125 °C 16.5 ns 20 ns 15 ns 10 ns
	GDFP5-F14 or CDFP6-F14 GDFP4-F14 GDIP1-T14 or CDIP2-T14 GDFP1-F14 or CDFP2-F14 GDIP1-T16 or CDIP2-T16 GDFP2-F16 or CDFP3-F16 GDFP2-F24 or CDFP3-F24 GDIP3-T24 or CDIP4-T24 GDIP1-T20 or CDIP2-T20 GDFP2-F20 or CDFP3-F20 CQCC1-N20  CQCC1-N28  m ratings.  nge e	GDFP5-F14 or CDFP6-F14 14 GDFP4-F14 14 GDIP1-T14 or CDIP2-T14 14 GDFP1-F14 or CDFP2-F14 14 GDFP1-F14 or CDFP2-F14 14 GDFP1-F16 or CDIP2-T16 16 GDFP2-F16 or CDFP3-F16 16 GDFP2-F24 or CDFP3-F24 24 GDIP3-T24 or CDIP4-T24 24 GDIP1-T20 or CDIP2-T20 20 GDFP2-F20 or CDFP3-F20 20 CQCC1-N20 20 CQCC1-N28 28  m ratings.  nge

Must withstand the added P<sub>D</sub> due to short-circuit test (e.g., I<sub>OS</sub>).
 Maximum junction temperature should not be exceeded except for allowable short duration burn-in screening conditions in according with MIL-PRF-38535.

Data setup time:	
Device type 01, 02, 04, and 05	15 ns
Device type 03	25 ns
Device types 06 and 07	15 ns
CLR or PR inactive state setup time:	
Device type 01, 02, 06, and 07	10 ns
Device type 03	20 ns
Data hold time (tp HOLD):	
Device type 01	2 ns
Device type 02 and 03	0 ns
Device type 04_05_06_and 07	4 ns

#### 2. APPLICABLE DOCUMENTS

2.1 <u>General</u>. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

#### 2.2 Government documents.

2.2.1 <u>Specifications and Standards</u>. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

#### DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-38535 - Integrated Circuits (Microcircuits) Manufacturing, General Specification for.

### DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard for Microelectronics.

MIL-STD-1835 - Interface Standard Electronic Component Case Outlines

(Copies of these documents are available online at http://assist.daps.dla.mil;quicksearch/ or www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 <u>Order of precedence.</u> In the event of a conflict between the text of this specification and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

- 3.1 <u>Qualification</u>. Microcircuits furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see 4.3 and 6.4).
- 3.2 <u>Item requirements</u>. The individual item requirements shall be in accordance with MIL-PRF-38535 and as specified herein or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein.
- 3.3 <u>Design, construction, and physical dimensions.</u> The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein.
- 3.3.1 <u>Terminal connections and logic diagrams</u>. The terminal connections and logic diagrams shall be as specified on figures 1 and 2.

- 3.3.2 Truth tables. The truth tables and logic equations shall be as specified on figure 3.
- 3.3.3 <u>Schematic circuits</u>. The schematic circuits shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity (DSCC-VAS) upon request.
  - 3.3.4 Case outlines. The case outlines shall be as specified in 1.2.3.
  - 3.4 Lead material and finish. The lead material and finish shall be in accordance with MIL-PRF-38535 (see 6.6).
- 3.5 <u>Electrical performance characteristics</u>. The electrical performance characteristics are as specified in table I, and apply over the full recommended case operating temperature range, unless otherwise specified.
- 3.6 <u>Electrical test requirements</u>. The electrical test requirements for each device class shall be the subgroups specified in table II. The electrical tests for each subgroup are described in table III.
  - 3.7 Marking. Marking shall be in accordance with MIL-PRF-38535.
- 3.8 <u>Microcircuit group assignment.</u> The devices covered by this specification shall be in microcircuit group number 10 (see MIL-PRF-38535, appendix A).

### 4. VERIFICATION

4.1 <u>Sampling and inspection</u>. Sampling and inspection procedures shall be in accordance with \_MIL-PRF-38535 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not effect the form, fit, or function as described herein.

TABLE I. <u>Electrical performance characteristics</u>.

Test	Symbol	Conditions				nits	Unit
			c ≤ +125°C wise specified	types	Min	Max	
High-level output voltage	V <sub>OH</sub>	$V_{CC} = 4.5 \text{ V}$	Ι <sub>ΟΗ</sub> = -400 μΑ	01, 02, 03	2.5		V
		$V_{IL} = 0.8 \text{ V}$ $V_{IH} = 2.0 \text{ V}$	I <sub>OH</sub> = -1.0 mA	04, 05, 06, 07	2.4		V
Low-level output voltage	V <sub>OL</sub>	$V_{CC} = 4.5 \text{ V}$	I <sub>OL</sub> = 4 mA	01, 02, 03		0.4	V
		$V_{IL} = 0.8 \text{ V}$ $V_{IH} = 2.0 \text{ V}$	I <sub>OL</sub> = 12 mA	04, 05, 06, 07		0.4	V
Input clamp voltage	V <sub>IC</sub>	$V_{CC} = 4.5 \text{ V}, I_{IN}$ $T_{C} = +25^{\circ}\text{C}$	= -18 mA	All		-1.5	V
Low-level input current at CLK or D	I <sub>IL1</sub>	$V_{CC} = 5.5 \text{ V}, \text{ V}_{II}$	<sub>N</sub> = 0.4 V	01	0	-200	μΑ
Low-level input current at J, K, or $\overline{K}$	I <sub>IL2</sub>			02, 03			
Low-level input current at any input	I <sub>IL3</sub>			04, 05, 06, 07			
Low level input current at $\overline{PR}$ , $\overline{CLR}$	I <sub>IL4</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V		01, 02, 03	0	-400	μΑ
High-level input current at CLK or D	I <sub>IH1</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IH</sub> = 2.7 V		01		20	μΑ
High-level input current	I <sub>IH2</sub>			02, 03			
at J, K, or K							
High-level input current	I <sub>IH3</sub>			04, 05,			
at any input				06, 07			
High level input current at PR, CLR	I <sub>IH4</sub>			01, 02, 03		40	μΑ
High-level input current at CLK	I <sub>IH5</sub>			02, 03		20	μΑ
High-level input current at CLK or D	I <sub>IH6</sub>	$V_{CC} = 5.5 \text{ V}, \text{ V}_{II}$	<sub>N</sub> = 7.0 V	01		100	μΑ
High-level input current	I <sub>IH7</sub>	]		02, 03		100	μΑ
at J, K, or $\overline{K}$							
High-level input current	I <sub>IH8</sub>	]		04, 05,		]	
at any input				06, 07			
High level input current at $\overline{PR}$ , $\overline{CLR}$	I <sub>IH9</sub>			01, 02, 03		200	μΑ
High-level input current	I <sub>IH10</sub>			02		400	μΑ
at CLK				03		100	μΑ

See footnotes at end of table.

TABLE I. <u>Electrical performance characteristics</u>.

Test	Symbol	Con	ditions	Device	Lin	nits	Unit
			Γ <sub>C</sub> ≤ +125°C rwise specified	types	Min	Max	
Output current 1/	I <sub>O</sub>	V <sub>CC</sub> = 5.5 V	·	01, 02, 03, 04	-20	-112	mA
		$V_0 = 2.25 \text{ V}$		05, 06, 07	-15	-110	mA
Output current, high level, outputs OFF	I <sub>OZH</sub>	$V_{CC} = 5.5 \text{ V}$ $V_{O} = 2.7 \text{ V}$		04, 05, 06, 07		20	μΑ
Output current, low level, outputs OFF	I <sub>OZL</sub>	V <sub>CC</sub> = 5.5 V		04, 05, 06, 07		-20	μΑ
•	1	$V_0 = 0.4 \text{ V}$		01, 02		4.0	mA
Supply current <u>2</u> /	Icc	$V_{CC} = 5.5 \text{ V}$		03		4.0	mA
Supply current, outputs	I <sub>CCH</sub>	$V_{IN} = 0 V$ $V_{CC} = 5.5 V$	V <sub>IN</sub> = 5.0 V	05		4.5 17	mA
high	ICCH	$V_{CC} = 5.5 \text{ V}$	V <sub>IN</sub> = 5.0 V	04		18	
3			V <sub>IN</sub> = 0 V	06		15	
			V <sub>IN</sub> = 0 V	07		21	
Supply current outputs	lee.	V <sub>CC</sub> = 5.5 V	V <sub>IN</sub> = 0 V	04		27	mA
Supply current, outputs low	I <sub>CCL</sub>	VCC = 5.5 V	VIN = U V	06		29	
			V <sub>IN</sub> = 5.0 V	05		23	
			VIN = 5.0 V	07		29	
Supply current, outputs	I <sub>CCZ</sub>	V <sub>CC</sub> = 5.5 V		05		27	mA
disabled	ICCZ	$V_{CC} = 5.0 \text{ V}$		04			
						28	
				06, 07		31	
Maximum clock frequency	f <sub>max</sub>	$V_{CC} = 5.0 \text{ V}$ $C_L = 50 \text{ pF} \pm 10$	)%	01, 02, 04, 05, 06, 07	30		MHz
		$R_L = 500\Omega$	.,,	03	25		
Propagation delay time low to high level,	t <sub>PLH1</sub>	$V_{CC} = 5.0 \text{ V}$ $C_L = 50 \text{ pF} \pm 10$	)%	01, 02	3	15	ns
CLR or PR to output		$R_L = 500\Omega$		03	3	20	
Propagation delay time	t <sub>PHL1</sub>	-		01, 02	5	17	
high to low,				03	4	22	
CLR or PR to output				05, 07	6	22	
Propagation delay time low to high level,	t <sub>PLH2</sub>			01, 02	5	18	
CLK to output				03	3	18	
CLK to output				05, 06, 07	4	15	
Propagation delay time	t <sub>PHL2</sub>	-		04	<u>4</u> 5	18 20	
high to low level,	*PILZ			03	5	23	
CLK to output				04, 05,	4	15	
Dropogotion dolay time		4		06, 07			
Propagation delay time output control to low level output	t <sub>PZL</sub>			04, 05, 06, 07	4	21	

See footnotes at end of table.

TABLE I. <u>Electrical performance characteristics</u>.

Test	Symbol	Conditions $-55^{\circ}C \le T_C \le +125^{\circ}C$ unless otherwise specified	Device types	Lim Min	its Max	Unit
Propagation delay time output control to high level output	t <sub>PZH</sub>	$V_{CC} = 5.0 \text{ V}$ $C_L = 50 \text{ pF} \pm 10\%$ $R_L = 500\Omega$	04, 05, 06, 07	4	21	ns
Propagation delay time low level to output control	t <sub>PLZ</sub>	- KL = 50022	05, 06, 07	3	15	
CONTROL			04	2	15	
Propagation delay time high level to output	t <sub>PHZ</sub>		05, 06, 07	2	10	
control			04	2	12	

 $<sup>\</sup>underline{1}/$  The output conditions have veen chosen to produce a current that closely approximates one-half of the true short-circuit output current,  $I_{OS}$ .

 $<sup>\</sup>underline{2}/I_{CC}$  is measured with outputs open with J, K,  $\overline{K}$ , or D, CLK and  $\overline{PR}$  grounded; then with J, K,  $\overline{K}$ , or D, CLK and  $\overline{CLR}$  grounded.

- 4.2 <u>Screening.</u> Screening shall be in accordance with MIL-PRF-38535 and shall be conducted on all devices prior to qualification and conformance inspection. The following additional criteria shall apply:
  - a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
  - b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical parameters test prior to burn-in is optional at the discretion of the manufacturer.
  - c. Additional screening for space level product shall be as specified in MIL-PRF-38535, appendix B.

TABLE II. Electrical test requirements.

	Subgroups	(see table III)
MIL-PRF-38535	Class S	Class B
test requirements	devices	devices
Interim electrical parameters	1	1
Final electrical test parameters	1*, 2, 3, 7*,	1*, 2, 3,
	9, 10, 11	7, 9
Group A test requirements	1, 2, 3, 7, 8,	1, 2, 3, 7
	9, 10, 11	9, 10, 11
Group B test when using the method 5005	1, 2, 3,	N/A
QCI option	9, 10, 11	
Group C end-point electrical		1, 2, 3
parameters	1, 2, 3,	
	9, 10, 11	
Group D end-point electrical parameters	1, 2, 3	1, 2, 3

<sup>\*</sup>PDA applies to subgroup 1 for class B and subgroups 1 and 7 for class S.

- 4.3 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-38535.
- 4.4 <u>Technology Conformance inspection (TCI)</u>. Technology conformance inspection shall be in accordance with MIL-PRF-38535 and herein for groups A, B, C, and D inspections (see 4.4.1 through 4.4.4).
  - 4.4.1 Group A inspection. Group A inspection shall be in accordance with table III of MIL-PRF-38535 and as follows:
    - a. Tests shall be as specified in table II herein.
    - b. Subgroups 4, 5, and 6 shall be omitted.
  - 4.4.2 Group B inspection. Group B inspection shall be in accordance with table II MIL-PRF-38535.
  - 4.4.3 Group C inspection. Group C inspection shall be in accordance with table IV of MIL-PRF-38535 and as follows:
    - a. End-point electrical parameters shall be as specified in table II herein.

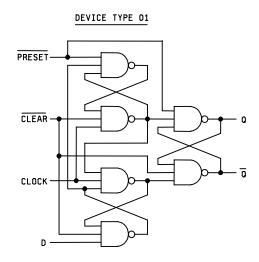
- b. The steady-state life test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.
- 4.4.4 <u>Group D inspection.</u> Group D inspection shall be in accordance with table V of MIL-PRF-38535. End-point electrical parameters shall be as specified in table II herein.
  - 4.5 Methods of inspection. Methods of inspection shall be specified and as follows:
- 4.5.1 <u>Voltage and current</u>. All voltages given are referenced to the microcircuit ground terminal. Currents given are conventional and positive when flowing into the referenced terminal.

	Device	type 01	Device	type 02	Device	type 03	Device	type 04
		CASES						
Pin number	A, B, C, and D	2	E, F	2	E, F	2	R, S	2
1	1 CLR	N/C	1 CLR	N/C	1CLK	N/C	OC	OC
2	1D	1 CLR	1J	1 CLR	1K	1CLK	1D	1D
3	1CLK	1D	1 K	1J	1J	1K	2D	2D
4	1 PR	1CLK	1CLK	1 K	1 PR	1J	3D	3D
5	1Q	N/C	1 PR	1CLK	1Q	1 PR	4D	4D
6	1Q	1 PR	1Q	NC	1 Q	N/C	5D	5D
7	GND	N/C	1Q	1 PR	2 Q	1Q	6D	6D
8	2 \overline{Q}	1Q	GND	1Q	GND	1 Q	7D	7D
9	2 Q	1 Q	2 \overline{Q}	1Q	2 Q	2 Q	8D	8D
10	2 PR	GND	2 Q	GND	2 PR	GND	GND	GND
11	2 CLK	N/C	2 PR	N/C	2 J	N/C	CLK	CLK
12	2D	2 \overline{Q}	2CLK	2 <del>Q</del>	2K	2Q	8Q	8Q
13	2 CLR	2Q	2K	2Q	2CLK	2 PR	7Q	7Q
14	V <sub>cc</sub>	2 PR	2J	2 PR	2 CLR	2J	6Q	6Q
15		N/C	2 CLR	2CLK	1 CLR	2K	5Q	5Q
16		2 CLK	V <sub>CC</sub>	N/C	Vcc	N/C	4Q	4Q
17		N/C		2K		2CLK	3Q	3Q
18		2 D		2 J		2 CLR	2Q	2Q
19		2 CLR		2 CLR		1 CLR	1Q	1Q
20		V <sub>CC</sub>		V <sub>CC</sub>		V <sub>CC</sub>	V <sub>CC</sub>	$V_{CC}$

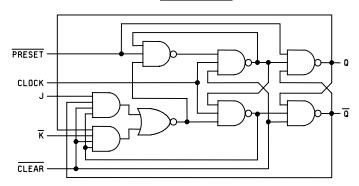
FIGURE 1. Terminal connections.

	Device	type 05	Device	type 06	Device	type 07
			CAS	SES		
Pin number	R, S	2	L, K	3	L,K	3
1	OC	<del>OC</del>	1 CLR	N/C	1 PR	N/C
2	1D	1D	1 OC	1 CLR	1 OC	1 PR
3	2D	2D	1D1	1 OC	1D1	1 OC
4	3D	3D	1D2	1D1	1D2	1D1
5	4D	4D	1D3	1D2	1D3	1D2
6	5D	5D	1D4	1D3	1D4	1D3
7	6D	6D	2D1	1D4	2D1	1D4
8	7D	7D	2D2	N/C	2D2	N/C
9	8D	8D	2D3	2D1	2D3	2D1
10	GND	GND	2D4	2D2	2D4	2D2
11	CLK	CLK	2 OC	2D3	2 OC	2D3
12	8 <del>Q</del>	8 <del>Q</del>	GND	2D4	GND	2D4
13	7Q	7Q	2 CLR	2 OC	2 PR	2 OC
14	6Q	6Q	2CLK	GND	2CLK	GND
15	5 Q	5 \( \overline{Q} \)	2Q4	N/C	2 Q 4	N/C
16	4 Q	4 Q	2Q3	2 CLR	2 \overline{Q} 3	2 PR
17	3 \( \overline{Q} \)	3 Q	2Q2	2CLK	2 Q 2	2CLK
18	2Q	2Q	2Q1	2Q4	2 Q 1	2 \overline{Q} 4
19	1 Q	1 Q	1Q4	2Q3	1 Q 4	2 Q 3
20	V <sub>CC</sub>	V <sub>CC</sub>	1Q3	2Q2	1 Q 3	2 Q 2
21			1Q2	2Q1	1 \( \overline{Q} \) 2	2 Q 1
22			1Q1	N/C	1 Q 1	N/C
23			1CLK	1Q4	1CLK	1 \overline{Q} 4
24			V <sub>CC</sub>	1Q3	Vcc	1 \overline{Q} 3
25				1Q2		1 Q 2
26				1Q1		1 Q 1
27				1CLK		1CLK
28				Vcc		Vcc

FIGURE 1. <u>Terminal connections</u> - Continued.



# DEVICE TYPE 02



# DEVICE TYPE 03

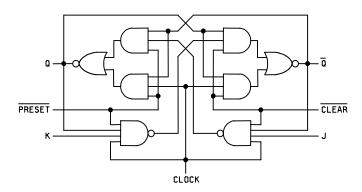


FIGURE 2. Logic diagrams.

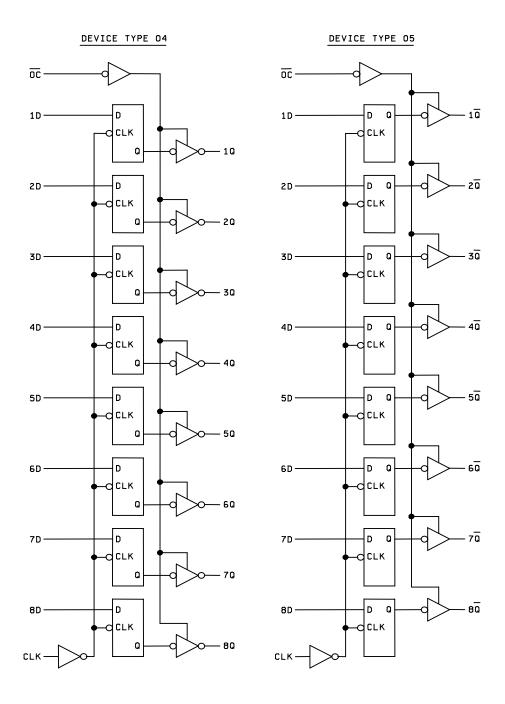


FIGURE 2. Logic diagrams - Continued.

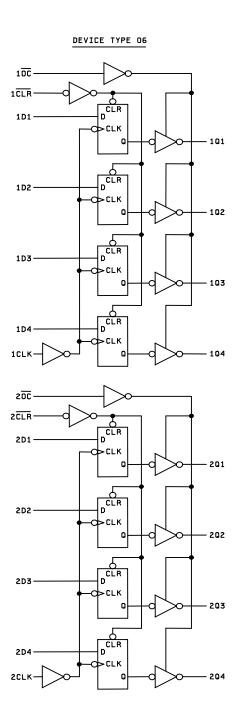


FIGURE 2. Logic diagrams – Continued.

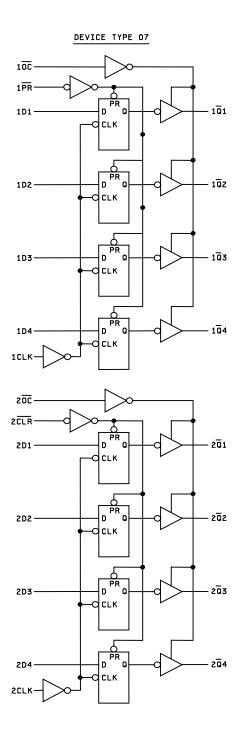


FIGURE 2. <u>Logic diagrams</u> – Continued.

## Device type 01

	OUTP	UTS			
PRESET	CLEAR	CLOCK	D	Q	$\overline{Q}$
L	Н	Х	Χ	Н	L
Н	L	Χ	Χ	L	Н
L	L	Χ	Χ	H*	H*
Н	Н	<b>↑</b>	Н	Н	L
Н	Н	1	L	L	Н
Н	Н	L	Х	$Q_0$	Q <sub>0</sub>

H = High level (steady state).

L = Low level (steady state).

X = Irrelevant

↑ = Transition from low to high level

 $Q_0$ = The level of Q before the incicated steady state input conditions were established.

\*This configuration is nonstable; that is it will not persist when preset and clear inputs return to their inactive (high) level.

Device type 02

INPUTS						PUTS
PRESET	CLEAR	CLOCK	J	ĸ	Q	Q
L	Н	Х	Х	Х	Η	L
Н	L	Х	Х	Х	L	Н
L	L	X	Х	Χ	Ť*	H*
Н	Н	<b>↑</b>	L	L	L	Η
Н	Н	1	Н	L	TOG	GLE
Н	Н	1	L	Н	$Q_0$	$\overline{Q}_0$
Н	Н	1	Н	Н	Н	L
Н	Н	L	Х	Х	$Q_0$	$\overline{Q}_0$

H = High level (steady state)

L = Low level (steady state)

X = Irrelevant

↑ = Transition from low to high level

 $Q_0$ = The level of Q before the indicated steady state input conditions were established.

TOGGLE: Each output changes to the complement of its Previous level on each ↑ clock transition.

\*This configuration is nonstable; that is, it will not persist when preset and clear inputs return to their inactive (high) level.

FIGURE 3. Truth tables.

## Device type 03

	OUTI	PUTS				
PRESET	CLEAR	CLOCK	J	K	Q	$\overline{Q}$
L	Н	Х	Х	Х	Н	L
Н	L	Х	Х	Х	L	Н
L	L	Х	Х	Х	H*	H*
Н	Н	<b>+</b>	L	L	$Q_0$	Q <sub>0</sub>
Н	Н	<b>↓</b>	L	Н	L	Н
Н	Н	<b>↓</b>	Н	L	Н	L
Н	Н	<b>↓</b>	Н	Н	TOG	GLE
Н	Н	Н	Х	Х	$Q_0$	$\overline{Q}_0$

H = High level (steady state)

L = Low level (steady state)

X = Irrelevant

↓= Tansition from high to low level

Q<sub>0</sub>= The level of Q before the indicated steady state input conditions were established.

TOGGLE: Each output changes to the complement of its Previous level on each ↓ clock transition.

Device type 04

OUTPUT	CLOCK	D	OUTPUT
CONTROL			Q
L	<b>↑</b>	Н	Н
L	<b>↑</b>	L	L
L	L	Χ	$Q_0$
Н	X	Χ	Z

H = High level (steady state)

L = Low level (steady state)

X = Irrelevent

↑ = Transition from low to high level

Q<sub>0</sub>= The level of Q before the indicated steady State input conditions were established.

Z = High Impedance state

FIGURE 3. <u>Truth tables</u> – Continued.

<sup>\*</sup>This configuration is nonstable; that is, it will not persist when preset and clear inputs return to their inactive (high) level.

Device type 05

OUTPUT	CLOCK	D	OUTPUT
CONTROL			$\overline{Q}$
L	<b>↑</b>	Н	L
L	<b>↑</b>	L	Н
L	L	Х	$\overline{Q}_{0}$
Н	Х	Х	Z

H = High level (steady state)

L = Low level (steady state)

X = Irrelevent

↑ = Transition from low to high level

 $\overline{Q}$  0= The level of  $\overline{Q}$  before the indicated steady state input conditions were established.

Z = High Impedance state

# Device type 06

CLEAR	DATA	CLOCK	OUTPUT CONTROL	OUTPUT
CLR	D	CLK	ŌC	Q
Х	Х	X	Н	Z
L	Х	Х	L	L
Н	Н	<b>↑</b>	L	Н
Н	L	1	L	L
Н	Х	L	L	$Q_0$

H = High level (steady state)

L = Low level (steady state)

X = Irrelevent

↑ = Transition from low to high level

Q<sub>0</sub>= The level of Q before the indicated steady state input conditions were established.

Z = High Impedance state

## Device type 07

PRESET	DATA	CLOCK	OUTPUT CONTROL	OUTPUT
PR	D	CLK	OC	ΙQ
X	X	Х	Н	Z
L	Χ	Х	L	L
Н	Н	1	L	L
Н	L	1	L	Н
Н	Х	L	L	$\overline{Q}_{0}$

H = High level (steady state)

L = Low level (steady state)

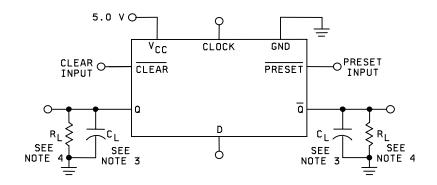
X = Irrelevent

↑= Transition from low to high level

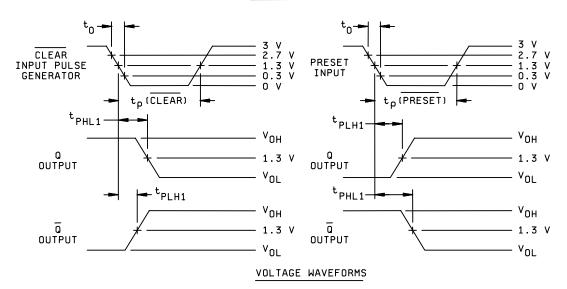
 $\overline{Q}$  0= The level of  $\overline{Q}$  before the indicated steady state input conditions were established.

Z = High Impedance state

FIGURE 3. <u>Truth tables</u> – Continued.

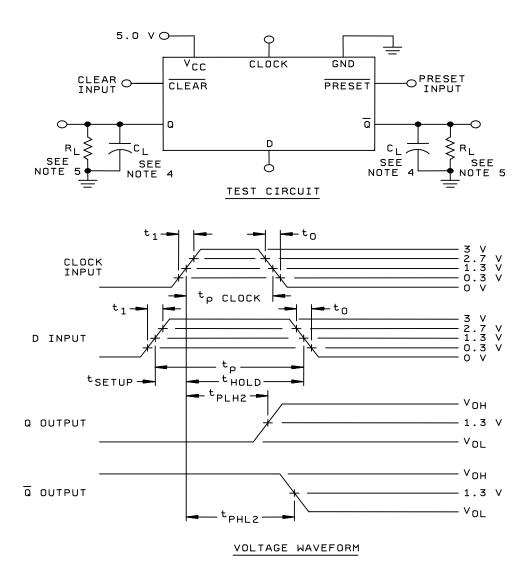


#### TEST CIRCUIT



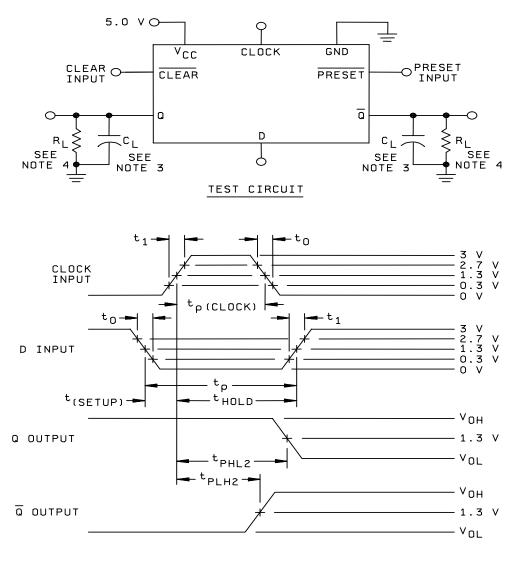
- 1. Clear and preset inputs dominate regardless of the state of clock or D inputs.
- 2. Clear or preset input pulse charactersistics:  $t_p$  (  $\overline{\text{clear}}$  ) = 15 ns;  $t_p$  (  $\overline{\text{preset}}$  ) = 15 ns; and PRR  $\leq$  1 MHz;  $t_0$  = 6  $\pm$ 1.5 ns.
- 3.  $C_L = 50 \text{ pF} \pm 10\%$  (including jug and probe capacitance without package in test fixture).
- 4.  $R_L = 499\Omega \pm 1\%$ .
- 5. When testing clear to output switching, preset input shall have a logical "1" voltage applied. When testing preset to output switching, clear input shall have a logical "1" voltage applied (see table III).
- 6. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 4. Clear and preset switching test circuit and waveforms (device type 01).



- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clock) = 16.5 ns; PRR  $\leq$  1 MHz.
- 2. D input pulse characteristics:  $t_1=t_0=6\pm1.5$ ;  $t_{setup}=15$  ns;  $t_{hold}=2$  ns;  $t_p=17$  ns; PRR is 50% on the clock PRR.
- 3. For  $f_{MAX}$ , the clock input pulse characteristics are as follows:  $t_1 = t_0 \le 3$  ns;  $t_p$  (clock) = 16.5 ns; PRR = 30 MHz.
  - The D input pulse shall be one-half of the frequency of the clock and the D  $\uparrow$  and  $\downarrow$  shall be coincident with the clock  $\downarrow$ .  $t_1 = t_0 = 6 \pm 1.5$  ns.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_L = 499\Omega \pm 1\%$ .
- 6. Voltage measurements are to be made with respect to network ground terminal.

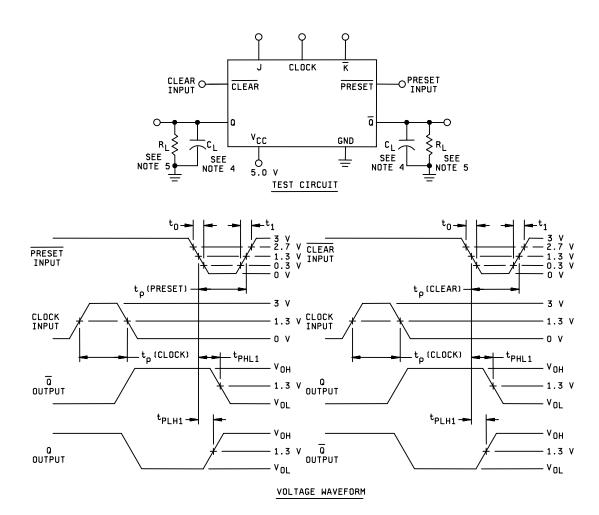
FIGURE 4. Synchronous switching test circuit (high-level data) device type 01.



## VOLTAGE WAVEFORM

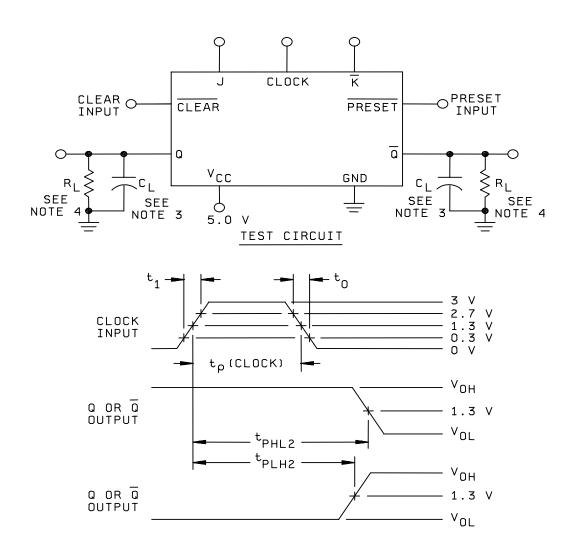
- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5 \text{ ns}$ ;  $t_p \text{ (clock)} = 16.5 \text{ ns}$ ; PRR = 1 MHz.
- 2. D input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$ ;  $t_{setup} = 15$  ns;  $t_{hold} = 2$  ns;  $t_p = 17$  ns; PRR is 50% of the clock PRR.
- 3.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 4.  $R_L = 499\Omega \pm 1\%$ .
- 5. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 4. Synchronous switching test circuit (low-level data) (device type 01).



- 1. Clear and preset inputs dominate regardless of the state of clock or J-K inputs.
- 2. Clear and preset input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clear) = 15 ns;  $t_p$  (preset) = 15 ns; and PRR  $\leq$  1 MHz.
- 3.  $t_p$  (clock) = 16.5 ns min; PRR = same as clear and preset.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_1 = 499\Omega \pm 1\%$ .
- 6. When testing clear to output switching, preset input shall have a logical "1" voltage applied. When testing preset to output switching, clear input shall have a logical "1" voltage applied (see table III).
- 7. Voltage measurements are to be made with respect to network ground terminal.

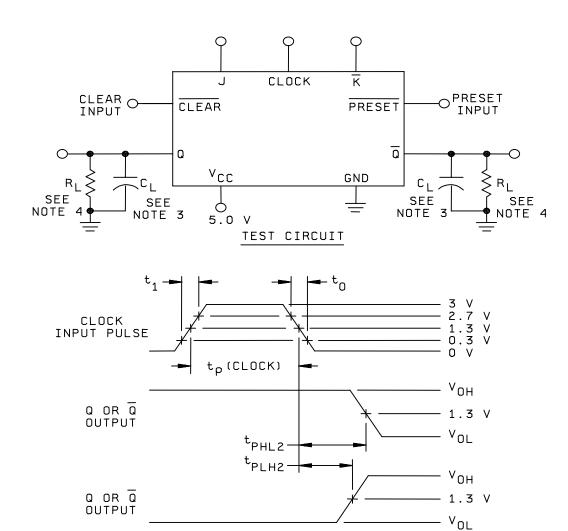
FIGURE 4. Clear and preset switching test circuit and waveforms (device type 02).



# VOLTAGE WAVEFORMS

- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clock) = 16.5 ns; PRR = 1 MHz.
- 2. For  $f_{MAX}$ , the clock input pulse characteristics are as follows:  $t_1=t_0\leq 3$  ns;  $t_p$  (clock) = 16.5 ns; PRR = 30 MHz.
- 3.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 4.  $R_L = 499\Omega \pm 1\%$ .
- 5. Voltage measurements are to be made with respect to network ground terminal.

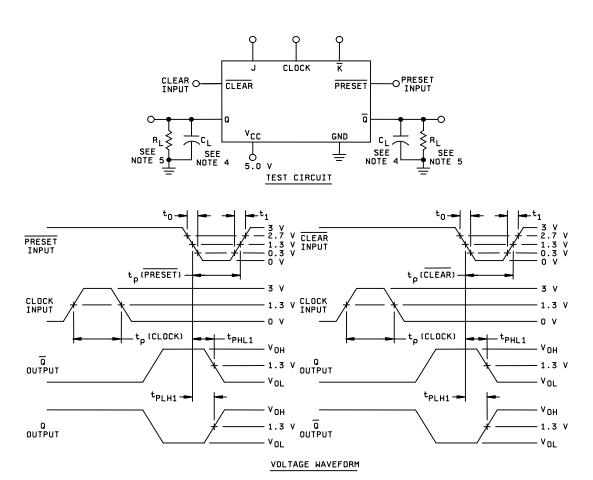
FIGURE 4. Synchronous switching test circuit (device type 02).



VOLTAGE WAVEFORMS

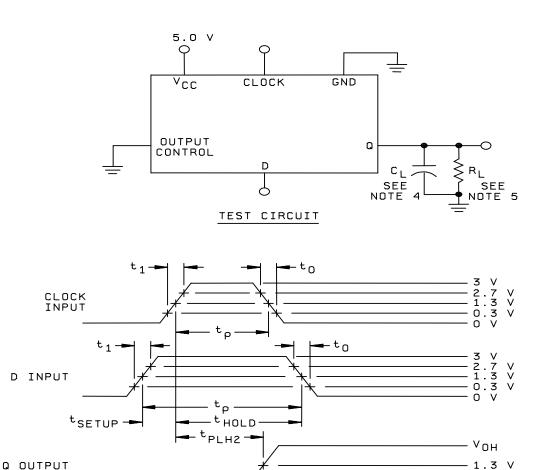
- 1. Clock input pulse characteristics:  $t_1 = t_0 \le 6 \pm 1.5$  ns;  $t_p$  (clock) = 20 ns; PRR = 1 MHz.
- 2. For  $f_{MAX}$ , the clock input pulse characteristics are as follows:  $t_1 = t_0 \le 3$  ns;  $t_p$  (clock) = 20 ns; PRR = 25 MHz.
- 3.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 4.  $R_L = 499\Omega \pm 1\%$ .
- 5. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 4. Synchronous switching test circuit (device type 03).



- 1. Clear and preset inputs dominate regardless of the state of clock or J-K inputs.
- 2. Clear and preset input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5 \text{ ns}$ ;  $t_p$  (clear) = 15 ns;  $t_p$  (preset) = 15 ns; and PRR  $\leq$  1 MHz.
- 3.  $t_p$  (clock) = 20 ns minimum; PRR = clear or preset PRR.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_L = 499\Omega \pm 1\%$ .
- 6. When testing clear to output switching, present inputs shall have a logical "1" voltage applied. When testing preset to output switching, clear input shall have a logical "1" voltage applied (see table III).

FIGURE 4. Clear and preset switching test circuit and waveforms (device type 03).

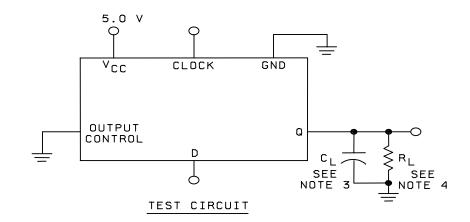


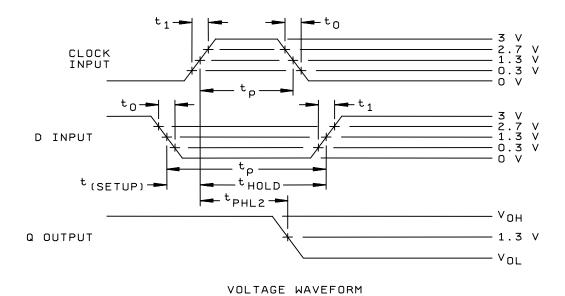
VOLTAGE WAVEFORM

 $V_{\Omega L}$ 

- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5 \text{ ns}$ ;  $t_p \text{ (clock)} = 16.5 \text{ ns}$ ; PRR  $\leq 1 \text{ MHz}$ .
- 2. D input pulse characteristics:  $t_1$  =  $t_0$  =  $6 \pm 1.5$ ;  $t_{\text{setup}}$  = 15 ns;  $t_{\text{hold}}$  = 4 ns;  $t_p$  = 19 ns; PRR is 50% of the clock PRR.
- 3. For  $f_{MAX}$ , the clock input pulse characteristics are as follows:  $t_1 = t_0 \le 3$  ns;  $t_p$  (clock) = 16.5 ns; PRR = 30 MHz. The D input pulse shall be one-half of the frequency of the clock and the D  $\uparrow$  and  $\downarrow$  shall be coincident with the clock  $\downarrow$ .  $t_1 = t_0 = 6 \pm 1.5$  ns.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_L = 499\Omega \pm 1\%$ .
- 6. Voltage measurements are to be made with respect to network ground terminal.

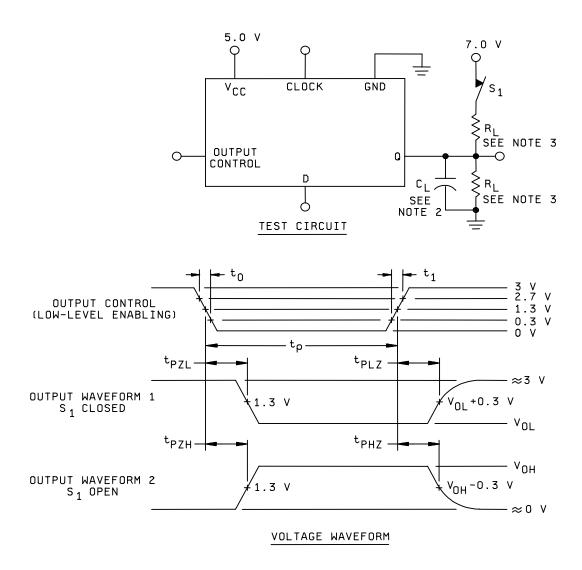
FIGURE 4. Synchronous switching test circuit (high level data) (device type 04).





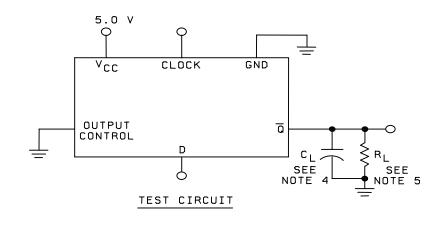
- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clock) = 16.5 ns; PRR = 1 MHz.
- 2. D input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$ ;  $t_{\text{setup}} = 15 \text{ ns}$ ;  $t_{\text{hold}} = 4 \text{ ns}$ ;  $t_p = 19 \text{ ns}$ .
- 3.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 4.  $R_L = 499\Omega \pm 1\%$ .
- 5. Voltage measurements are to be made with respect to network ground terminal.

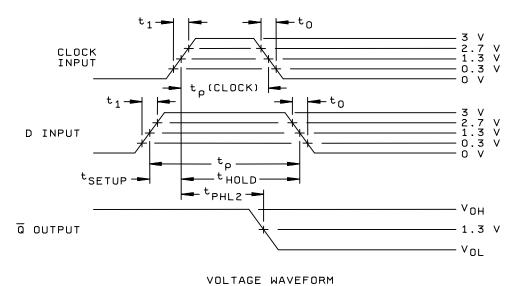
FIGURE 4. Synchronous switching test circuit (low-level data) (device type 04).



- 1. Output control characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p \ge 200$  ns; PRR  $\le 1$  MHz.
- 2.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 3.  $R_L = 499\Omega \pm 1\%$ .
- 4. Voltage measurements are to be made with respect to network ground terminal.

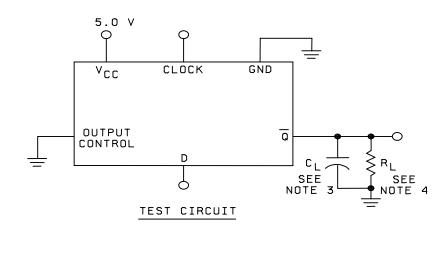
FIGURE 4. Tri-state switching test circuit (device type 04).

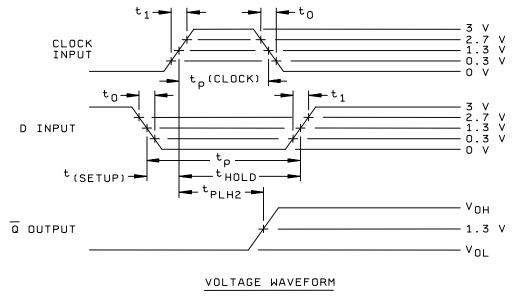




- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clock) = 16.5 ns; PRR  $\leq$  1 MHz.
- 2. D input pulse characteristics:  $t_1$  =  $t_0$  =  $6 \pm 1.5$ ;  $t_{setup}$  = 15 ns;  $t_{hold}$  = 4 ns;  $t_p$  = 19 ns; PRR is 50% of the clock PRR.
- 3. For  $f_{MAX}$ , the clock input pulse characteristics are as follows:  $t_1 = t_0 \le 3$  ns;  $t_p$  (clock) = 16.5 ns; PRR = 30 MHz. The D input pulse shall be one-half of the frequency of the clock and the D ↑ and ↓ shall be coincident with the clock ↓ .  $t_1 = t_0 = 6 \pm 1.5$  ns.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_L = 499\Omega \pm 1\%$ .
- 6. Voltage measurements are to be made with respect to network ground terminal.

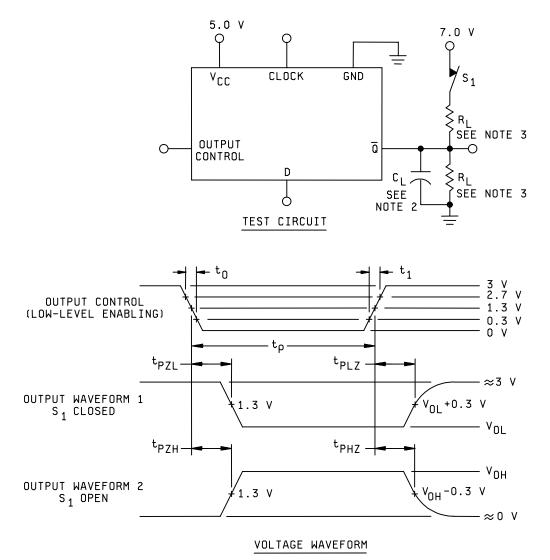
FIGURE 4. Synchronous switching test circuit (high-level data) (device type 05).





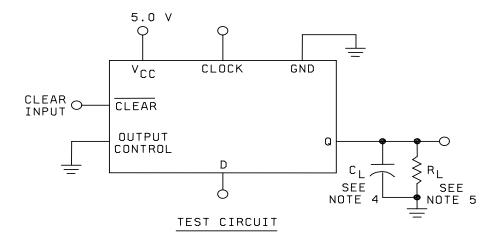
- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clock) = 16.5 ns; PRR  $\leq$  1 MHz.
- 2. D input pulse characteristics:  $t_1$  =  $t_0$  = 6 ±1.5 ns;  $t_{setup}$  = 15 ns;  $t_{hold}$  = 4 ns;  $t_p$  = 19 ns; PRR is 50% of the clock PRR.
- 3.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 4.  $R_L = 499\Omega \pm 1\%$ .
- 5. Voltage measurements are to be made with respect to network ground terminal.

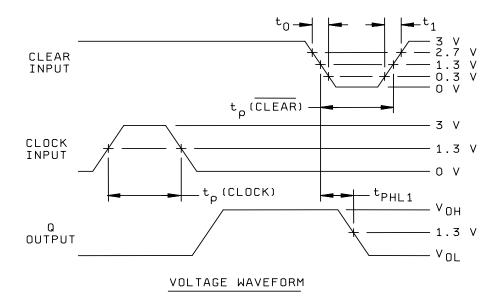
FIGURE 4. Synchronous switching test circuit (low-level data) (device type 05).



- 1. Output control characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p \ge 200$  ns; PRR  $\le 1$  MHz.
- 2.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 3.  $R_L = 499\Omega \pm 5\%$ .
- 4. Voltage measurements are to be made with respect to network ground terminal.

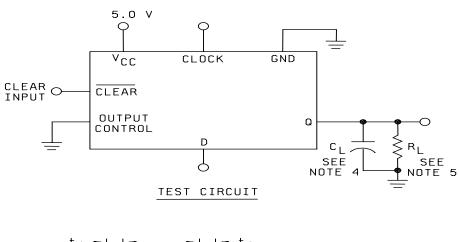
FIGURE 4. Tri-state switching test circuit (device type 05)

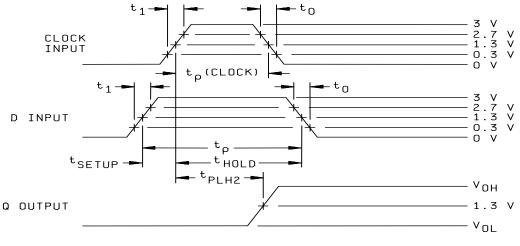




- 1. Clear inputs dominate regardless of the state of clock or D inputs.
- 2. Clear input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clear) = 10 ns; PRR  $\leq$  1 MHz.
- 3.  $t_p$  (clock) = 16.5 ns minimum; PRR = clear PRR.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_L = 499\Omega \pm 1\%$ .
- 6. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 4. Clear switching test circuit and waveforms (device type 06).

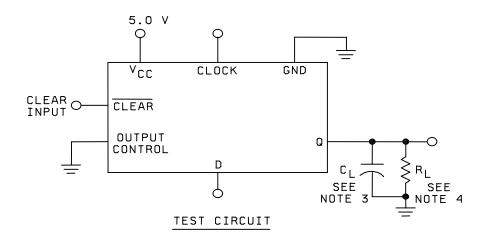


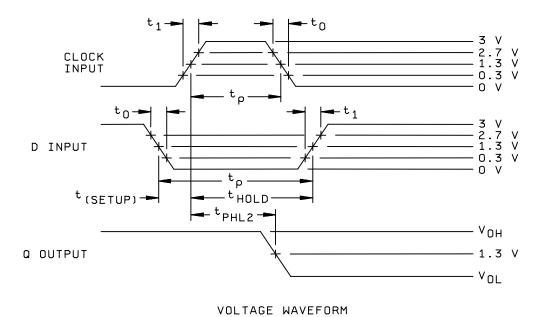


VOLTAGE WAVEFORM

- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clock) = 16.5 ns; PRR  $\leq$  1 MHz.
- 2. D input pulse characteristics:  $t_1$  =  $t_0$  = 6 ±1.5 ns;  $t_{setup}$  = 15 ns;  $t_{hold}$  = 4 ns;  $t_p$  = 19 ns; PRR is 50% of the clock PRR.
- 3. For  $f_{MAX}$ , the clock input pulse characteristics are as follows:  $t_1 = t_0 \le 3$  ns;  $t_p$  (clock) = 16.5 ns; PRR = 30 MHz. The D input pulse shall be one-half of the frequency of the clock and the D  $\uparrow$  and  $\downarrow$  shall be coincident with the clock  $\downarrow$ .  $t_1 = t_0 = 6 \pm 1.5$  ns.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_L = 499\Omega \pm 1\%$ .
- 6. Voltage measurements are to be made with respect to network ground terminal.

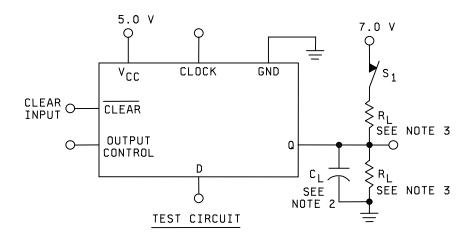
FIGURE 4. Synchronous switching test circuit (high-level data) (device type 06).

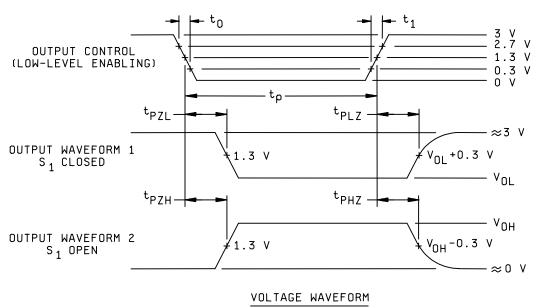




- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5 \text{ ns}$ ;  $t_p$  (clock) = 16.5 ns; PRR  $\leq$  1 MHz.
- 2. D input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_{setup} = 15$  ns;  $t_{hold} = 4$  ns;  $t_p = 19$  ns; PRR is 50% of the clock PRR.
- 3.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 4.  $R_L = 499\Omega \pm 1\%$ .
- 5. Voltage measurements are to be made with respect to network ground terminal.

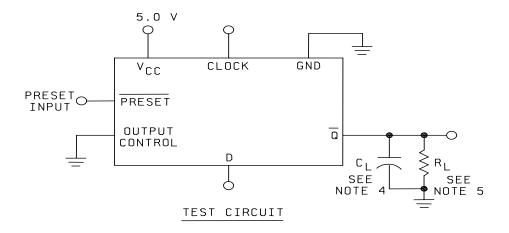
FIGURE 4. Synchronous switching test circuit (low-level data) (device type 06).

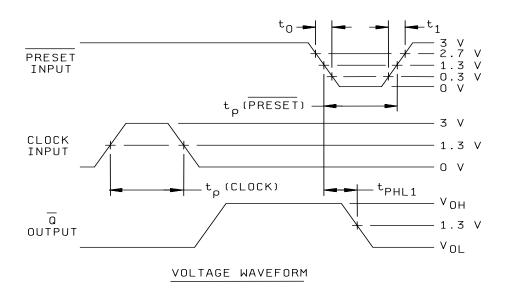




- 1. Output control characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p \ge 200$  ns; PRR  $\le 1$  MHz.
- 2.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 3.  $R_L = 499\Omega \pm 5\%$ .
- 4. Voltage measurements are to be made with respect to network ground terminal.

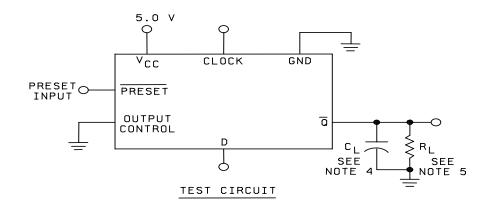
FIGURE 4. Tri-state switching test circuit (device type 06)

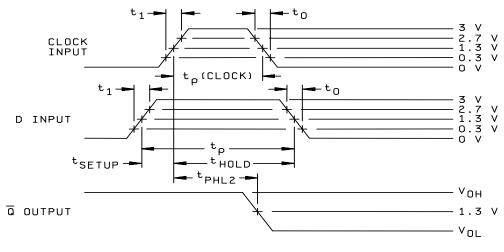




- 1. Preset inputs dominate regardless of the state of clock or D inputs.
- 2. Preset input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5 \text{ ns}$ ;  $t_p (\overline{\text{preset}}) = 10 \text{ ns}$ ; PRR  $\leq 1 \text{ MHz}$ .
- 3.  $t_p$  (clock) = 16.5 ns min; PRR = Preset PRR.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_L = 499\Omega \pm 1\%$ .
- 6. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 4. Preset switching test circuit and waveforms (device type 07).



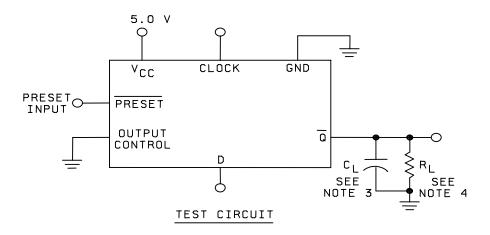


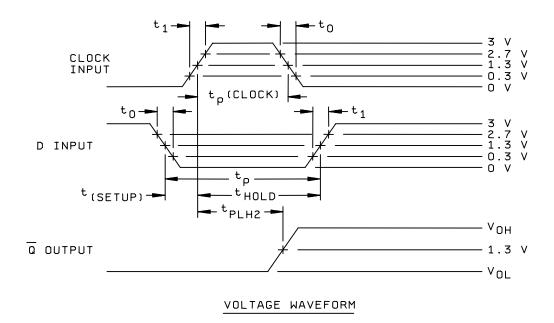
VOLTAGE WAVEFORM

# NOTES:

- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_p$  (clock) = 16.5 ns; PRR  $\leq$  1 MHz.
- 2. D input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5$  ns;  $t_{setup} = 15$  ns;  $t_{hold} = 4$  ns;  $t_p = 19$  ns; PRR is 50% of the clock PRR.
- 3. For  $f_{MAX}$ , the clock input pulse characteristics are as follows:  $t_1 = t_0 \le 3$  ns;  $t_p$  (clock) = 16.5 ns; PRR = 30 MHz. The D input pulse shall be one-half of the frequency of the clock and the D  $\uparrow$  and  $\downarrow$  shall be coincident with the clock  $\downarrow$ .  $t_1 = t_0 = 6 \pm 1.5$  ns.
- 4.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 5.  $R_L = 499\Omega \pm 1\%$ .
- 6. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 4. Synchronous switching test circuit (high-level data) (device type 07).

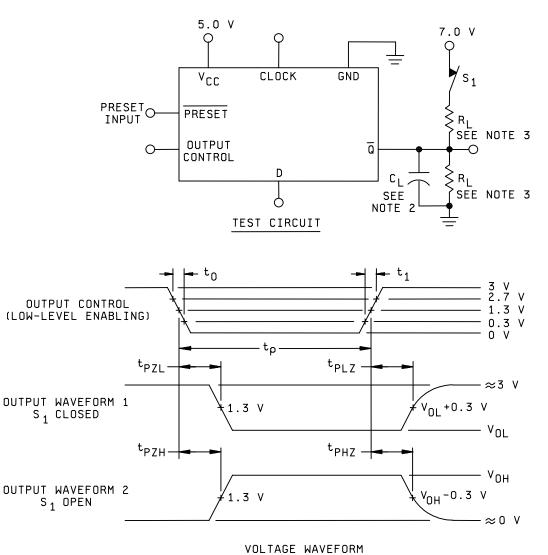




# NOTES:

- 1. Clock input pulse characteristics:  $t_1 = t_0 = 6 \pm 1.5 \text{ ns}$ ;  $t_p \text{ (clock)} = 16.5 \text{ ns}$ ; PRR  $\leq 1 \text{ MHz}$ .
- 2. D input pulse characteristics:  $t_1$  =  $t_0$  =  $6 \pm 1.5$  ns;  $t_{\text{setup}}$  = 15 ns;  $t_{\text{hold}}$  = 4 ns;  $t_p$  = 19 ns; PRR is 50% of the clock PRR.
- 3.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 4.  $R_L = 499\Omega \pm 1\%$ .
- 5. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 4. Synchronous switching test circuit (low-level data) (device type 07).



# NOTES:

- 1. Output control characteristics:  $t_1 = t_0 = 6 \pm 1.5 \text{ ns}; t_p \geq 200 \text{ ns}; \text{ PRR} \leq 1 \text{ MHz}.$
- 2.  $C_L = 50 \text{ pF} \pm 10\%$  (including jig and probe capacitance without package in test fixture).
- 3.  $R_L = 499\Omega \pm 5\%$ .
- 4. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 4. Tri-state switching test circuit (device type 07)

TABLE III. Group A inspection for device type 01.

Terminal conditions (pins not designated may be high  $\geq 2.0 \text{ V}$ ; or low  $\leq 0.8 \text{ V}$ ; or open). MIL-STD-Cases <u>1</u>/ 2 Limits 2 3 4 10 14 16 18 19 20 6 8 9 12 13 Subgroup Symbol 883 Cases 13 14 Measured Unit method A, B, C, D Test no. 1D 1CLK 1Q GND 2Q 2CLK 2D  $V_{CC}$ terminal Min Max 1 CLR 1 PR 1 Q 2 Q 2 PR 2 CLR 3006 2.0 V 2.0 V GND 0.8 V -0.4 mA GND 4.5 V 1Q 2.5 V 1 1 Tc = 25°C 2 0.8 V GND 2.0 V -0.4 mA 1 0 3 2.0 V -0.4 mA 1Q 2.0 V 0.8 V -0.4 mA 4 2/ 1 Q 5 -0.4 mA 2.0 V GND 2.0 V 0.8 V 2 Q GND 2Q 6 -0.4 mA 0.8 V 2.0 V 2.0 V 7 2.0 V -0.4 mA 2/ 0.8 V 2 Q 2Q -0.4 mA 2.0 V 2.0 V 8 2.0 V 0.8 V 1Q 0.4  $V_{OL}$ 3007 9 2.0 V 4 mA 10 2.0 V 2.0 V 4 mA <u>2</u>/ 1 Q 11 GND 0.8 V 4 mA 1 Q 1Q 12 0.8 V GND 2.0 V 4 mA 13 4 mA 2.0 V 0.8 V 2.0 V 2Q 14 4 mA 2.0 V 2.0 V 2/ 2 Q 15 0.8 V GND 4 mA 2 Q GND 2Q 16 4 mA 2.0 V 0.8 V 17 -1.5  $V_{IC}$ -18 mA 1 CLR -18 mA 1D 18 19 -18 mA 1CLK 20 -18 mA 1 PR 21 -18 mA 2 PR 22 2CLK -18 mA 23 -18 mA 2D 24 -18 mA 2 CLR 3009 25 5.0 V 0.4 V 5.0 V GND 5.5 V 1D  $I_{\rm IL1}$ <u>8</u>/ <u>8</u>/ μΑ 26 27 5.0 V GND 0.4 V GND 1CLK GND 0.4 V GND 5.0 V 2CLK 28 GND 5.0 V 0.4 V 5.0 V 2D 29 0.4 V 5.0 V 5.0 V GND 1 CLR 30 GND GND GND 0.4 V 1 PR 31 0.4 V GND GND GND 2 PR 32 GND 0.4 V 5.0 V 5.0 V 2 CLR GND GND GND 1D 33 2.7 V 20 34 GND GND 2.7 V GND 1CLK 35 GND 2.7 V GND GND 2CLK 36 GND GND 2.7 V GND 2D 37 2.7 V GND 3/ GND 40  $I_{1H4}$ 1 CLR 38 GND GND 3/ 2.7 V 1 PR 39 2.7 V GND GND 3/ 2 PR 40 GND <u>3</u>/ GND 2.7 V 2 CLR GND GND GND 1D 41 7.0 V 100  $I_{IH6}$ 42 GND GND 7.0 V GND 1CLK GND GND GND 43 7.0 V 2CLK 44 GND GND GND 2D 7.0 V

# MIL-M-38510/3

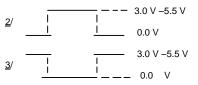
TABLE III. Group A inspection for device type 01.

		MIL-STD-	Cases <u>1</u> / 2	2	3	4	6	8	9	10	be high ≥ 2.0 12	13	14	16	18	19	20		Lii	nits	
ubgroup	Symbol	883 method	Cases A, B, C, D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured		11110	Uı
		metriod	Test no.	1 CLR	1D	1CLK	1 PR	1Q	1 Q	GND	2 Q	2Q	2 PR	2CLK	2D	2 CLR	V <sub>CC</sub>	terminal	Min	Max	
1	I <sub>IH9</sub>	3009	45	7.0 V	GND	<u>3</u> /	GND			GND							5.5 V	1 CLR		200	μ
c = 25°C		"	46	GND	GND	<u>3</u> /	7.0 V			и							"	1 PR		u	
		"	47							"			7.0 V	<u>3</u> /	GND	GND	"	2 PR		u	
		"	48							"			GND	<u>3</u> /	GND	7.0 V	"	2 CLR		u	
	I <sub>0</sub> <u>4</u> /	3011	49	5.0 V			GND	2.25 V		"							"	1Q	10/	10/	n
	-	"	50	GND			5.0 V		2.25 V	"							"	1 Q	-	"	
		"	51							"	2.25 V		5.0 V			GND	"	2 Q	"	"	
		"	52							"		2.25 V	GND			5.0 V	"	2Q	"	"	
	I <sub>cc</sub>	3005	53	5.5 V	GND	GND	GND			"			GND	GND	GND	5.5 V	"	V <sub>cc</sub>		4.0	Ь
		"	54	GND	GND	GND	5.5 V						5.5 V	GND	GND	GND		V <sub>CC</sub>			
7 <u>5</u> /	Truth	3014	55	В	В	В	В	Н	H	GND "	H	Н	В	В	В	В	5.0 V	All	<u>6</u> /	<u>6</u> /	
7 <u>5</u> / c = +25°C		3014	56	В		B "	A			GND "	- "		A	"	<u> </u>	В	5.U V	Outputs	<u>b</u> /	<u>0</u> /	
C - 723 C	tests	"	57	A	u	и	A	ī	u	"	"	1	A	"	"	A	и	"			
			01		"	"			<del></del>			<u> </u>		"		- "		"			+
	9/	"	58	"			I B	. н	L		L	I Н	в в								
	<u>9</u> /	"	58 59	"	"	A	B B	H	L	"	L L	H	B B	A	"	"	"	"		и	
	9/								L L H	"	L L				"	" B	u u	"	"	"	
	9/	"	59 60 61	и	и	Α	В	Н	L	"	L		В	Α	" " A	" B	"	"	"	"	
	<u>9</u> /	66 66	59 60 61 62	" B "	" A "	A "	B A "	H L "	L	"	L H "		В	A "	A "	и	"	"	" " "	11 11	
	<u>9</u> /	"	59 60 61 62 63	" B " A	" A "	A	B A "	H L "	L	" " "	L	H L "	B A "	Α		B "	"	"	" " " " " " " " " " " " " " " " " " " "	11 11	
	<u>9</u> /	66 66 66 66	59 60 61 62 63 64	" B " A	« A «	A	B A " "	H L "	L	66 66 66 66 66	L H "		B A " " B	A " " " " " " " " " " " " " " " " " " "	A "	и	" " " "	64 64 64	" " " " " " " " " " " " " " " " " " " "	11 II I	
	<u>9</u> /	"	59 60 61 62 63 64 65	" B " A	" A "	### ### ##############################	B A "	H L "	H " L L	66 66 66 66 66 66 66 66 66 66 66 66 66	L H "	H L "	B A "	A " " " " "	A "	и	"	"	11 11 11 11 11 11 11 11 11 11 11 11 11	"	
	<u>9</u> /	66 66 66 66 66	59 60 61 62 63 64 65 66	" B " A "	" A " "	A	B A " "	H L "	L H " L L	66 66 66 66 66 66 66 66 66 66 66 66 66	L H " " L	H L "	B A " " B A	A " " " " " " " " " " " " " " " " " " "	A " " "	и	66 66 66 66 66 66 66 66 66 66 66 66 66	66 66 66 66 66 66 66 66 66 66 66 66 66	11 11 11 11 11 11 11 11 11 11 11 11 11	"	
	9/	66 66 66 66 66	59 60 61 62 63 64 65 66	" A " "	« A « « « « « « « « « « « « « « « « « «	A " " " " " " B B B	B A "	H L " H H	L H " " L L	66 66 66 66	L H " " L "	H L "	B A "	A " " " " " " B B B	A "	" A "	66 66 66 66 66 66 66 66 66 66 66 66 66	66 66 66 66 66 66 66 66 66 66 66 66 66	" " " " " " " " " " " " " " " " " " " "	11 11 11 11 11 11 11 11 11 11 11 11 11	
	9/	66 66 66 66 66 66 66 66 66 66 66 66 66	59 60 61 62 63 64 65 66 67 68	# B # # # # # # # # # # # # # # # # # #	" A " " " " " B	A	B A "	H L " " H H "	L H ***	66 66 66 66	L H " " L	H L " " H "	B A "	A " " " " " " " " " " " " " " " " " " "	A " " "	" A "	66 66 66 66 66 66 66 66 66 66 66 66 66	66 66 66 66 66 66 66 66 66 66 66 66 66	H H H K K K K K K K K K K K K K K K K K	H H 66	
	9/	66 66 66 66 66 66 66 66 66 66 66 66 66	59 60 61 62 63 64 65 66	# B # # # # # # # # # # # # # # # # # #	" A " " " " " B	A " " " B B A	B A " " B A " " " " " " " " " " " " " "	H L " H H	L H " " L L	66 66 66 66	L H " " L "	H L " " H	B A " " B A " " " " " " " " " " " " " "	A " " " " " " B B B	A " " "	" A "	66 66 66 66 66 66 66 66 66 66 66 66 66	66 66 66 66 66 66 66 66 66 66 66 66 66	H H H K K K K K K K K K K K K K K K K K	H H 66	
	9/	64 64 64 64 64 64 64 64 64 64 64 64 64 6	59 60 61 62 63 64 65 66 67 68 69 70	" A " " " " " " " " " " " " " " " " " "	" " " " " " " " " A B A B	A	B A " " B A " " " B B B B B B B B B B B	H L " " H H "	L H " " L L " " " H H L	66 66 66 66	L H " " " " " " " H L	H L " " H "	B A " " " B A A " " " B A A " " " " B A A " " " "	A " " " " " " B B B	A	4 A 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	65 65 65 65 65 65 65 65 65 65 65 65 65 6	11 11 11 11 11 11 11 11 11 11 11 11 11	H H H K K K K K K K K K K K K K K K K K	H H 66	
	9/	64 64 64 64 64 64 64 64 64 64 64 64 64 6	59 60 61 62 63 64 65 66 67 68 69 70 71	" A " " " " " " " " " " " " " " " " " "	" A " " " B " A B "	A " " " " " " " " " " " " " " " " " " "	B A " " B A " " B A A	H L " " H H "	L H " " " " " " " " " " " " " " " " " "	66 66 66 66	L H " " " " " " " H L	H L " " H "	B A " B A " " B A " " " " " " " "	A " " " " " " B B A "	A " " " B " " A	« A « « « « » « » « » « » « » « » « » «		11 11 11 11 11 11 11 11 11 11 11 11 11	111 111 111 111 111 111 111 111 111 11	H H H G G G G G G G G G G G G G G G G G	
	9/	64 64 64 64 64 64 64 64 64 64 64 64 64 6	59 60 61 62 63 64 65 66 67 68 69 70 71 72 73	" A A " " B B " " A A	п п п п п п п п п п п п п п п п п п п	A	B A " " B A A " " "	H L " " H H "	L H " " L L H H H H	66 66 66 66	L H " " " " " " " " " " " " " " "	H L " " H "	B A " " " B A A " " " B A A " " " " B A A " " " "	A " " " " B B A " " " " " " " " " " " "	A " " " " B " " " A B " " " " "	4 A 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		11 11 11 11 11 11 11 11 11 11 11 11 11	H H H K K K K K K K K K K K K K K K K K	H H H G G G G G G G G G G G G G G G G G	
	9/	64 64 64 64 64 64 64 64 64 64 64 64 64 6	59 60 61 62 63 64 65 66 67 68 69 70 71 72 73	4 B 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	" " A B B " " A A B A A A	A " " " B B B A A " " " " " B B B B B B	B A a a a a a a a a a a a a a a a a a a	H L "" H H "" L H L	L H " " " " " " " " " " " " " " " " " "	66 66 66 66	L H " " " " " " " H L		B A III	A	A " " " B " " A	« A « « « « » « » « » « » « » « » « » «		11 11 11 11 11 11 11 11 11 11 11 11 11	111 111 111 111 111 111 111 111 111 11		
	9/	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74	" A A " " B B " " A A	п п п п п п п п п п п п п п п п п п п	A	B A	H L " " H H "	L H " " " " " " " " " " " " " " " " " "	66 66 66 66	L H " " L " " H L H U	H L " " H "	B A	A " " " " B B A " " " " " " " " " " " "	A " " " " B " " " A B " " " " "	« A « « « « » « » « » « » « » « » « » «		11 11 11 11 11 11 11 11 11 11 11 11 11	111 111 111 111 111 111 111 111 111 11	H H H G G G G G G G G G G G G G G G G G	
	9/	64 64 64 64 64 64 64 64 64 64 64 64 64 6	59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	4 A A 4	" " A B B " " A A B A A A	A " " " " " " " " " " " " " " " " " " "	B A	H L "" H H "" L H L	L H " " " " " " " " " " " " " " " " " "	66 66 66 66			B A	A	A " " " " B " " " A B " " " " "	« A « « « « » « » « » « » « » « » « » «		11 11 11 11 11 11 11 11 11 11 11 11 11	111 111 111 111 111 111 111 111 111 11		
	9/	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	## B ## ## ## ## ## ## ## ## ## ## ## ##	" A A B B " A A B B " A A A B B " B B B B	A " " " B B B A A " " " " " B B B B B B	B A	H	H	66 66 66 66			B A	A " " " " B B A " " " " " " " " " " " "	A " " " " B " " " A B " " " " "	" " " " " " " " " " " " " " " " " " "			111 111 111 111 111 111 111 111 111 11	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
	9/	64 64 64 64 64 64 64 64 64 64 64 64 64 6	59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	" A A " " " " B B " " " A A " " " " B B " " " "	" " " " " " " " " " " " " " " " " " "	A	B A A B A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A B A A A A B A A A B A B A A B A B A A B A B A A B A B A A B A B A A B A B A A B A B A A B A B A A B A B A A B A B A A B A B A A B A B A A B A B A B A A B B A B A B A B B A B A B A B B A B A B B A B A B B A B A B B A B A B B A B B A B B A B B A B B A B B A B B A B B A B B A B B A B B A B B B A B B B A B B A B B B B A B	H	L H " " " " " " " " " " " " " " " " " "	66 66 66 66	L H " " " " " " " " " " " " " " " " " "		B A	A	A " " " " B " " " A B " " " " "	# A A # # A A # # # B B		14 14 14 14 14 14 14 14 14 14 14 14 14 1	111 111 111 111 111 111 111 111 111 11	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	9/		59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	## B ## ## ## ## ## ## ## ## ## ## ## ##	" A A B " " A A B " " " " " " " " " " "	A	B A a a a a a a a a a a a a a a a a a a	H	H				B A	A	A " " " A A " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " "			11 11 11 11 11 11 11 11 11 11 11 11 11	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	

TABLE III. Group A inspection for device type 01.

						Tei					be high ≥ 2.										
		MIL-STD-	Cases <u>1</u> / 2	2	3	4	6	8	9	10	12	13	14	16	18	19	20		Lir	nits	
Subgroup	Symbol	883 method	Cases A, B, C, D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured			Unit
			Test no.	1 CLR	1D	1CLK	1 PR	1Q	1 Q	GND	2 Q	2Q	2 PR	2CLK	2D	2 CLR	V <sub>cc</sub>	terminal	Min	Max	
9	f <sub>MAX</sub>	Fig 4	82	3.5 V	IN	IN	3.5 V	OUT		GND							5.0 V	1CLK to 1Q	30		MHz
$Tc = 25^{\circ}C$	<u>7</u> /	"	83	3.5 V	IN	IN	3.5 V		OUT	"							"	1CLK to 1 Q	"		"
		и	84							"	OUT		3.5 V	IN	IN	3.5 V	"	2CLK to 2Q	"		"
		"	85							"		OUT	3.5 V	IN	IN	3.5 V	"	2CLK to 2 Q	"		
	t <sub>PLH1</sub>	3003	86							"		OUT	IN			IN	"	2PR to 2Q	3	13	ns
		"	87							"	OUT		IN			IN	"	2CLR to 2 Q	"		
		"	88	IN			IN		OUT	"							"	1CLR to 1 Q			
		и	89	IN			IN	OUT		"							"	1PR to 1Q			"
	t <sub>PHL1</sub>	"	90	IN			IN	OUT		u							u	1CLR to 1Q	5	15	"
		"	91	IN			IN		OUT	"							"	1PR to 1 Q	"		
			92							"	OUT		IN			IN	"	2PR to 2 Q	"	"	"
		и	93							"		OUT	IN			IN	"	2CLR to 2Q			
	t <sub>PLH2</sub>	и	94	3.5 V	IN	IN	3.5 V	OUT		"							"	1CLK to 1Q	-	16	"
		"	95	3.5 V	IN	IN	3.5 V		OUT	"							и	1CLK to 1 Q	"	"	"
		и	96							"	OUT		3.5 V	IN	IN	3.5 V	"	2CLK to 2 Q	"	u	"
		и	97							"		OUT	3.5 V	IN	IN	3.5 V	"	2CLK to 2Q			
	t <sub>PHL2</sub>	"	98	3.5 V	IN	IN	3.5 V	OUT		"							u	1CLK to 1Q		18	"
		"	99	3.5 V	IN	IN	3.5 V		OUT	"							"	1CLK to 1 Q			
		"	100							"	OUT		3.5 V	IN	IN	3.5 V	и	2CLK to 2 Q	"	"	"
		"	101							"		OUT	3.5 V	IN	IN	3.5 V	и	2CLK to 2Q	"	"	"
10	f <sub>MAX</sub>	"	102-105			ı.	l	l	ı	l	I	ı.	l	<u>l</u>		1	l		30		MHz
	t <sub>PLH1</sub>	"	106-109																3	15	ns
	tour		110-113	Same tes	ts and tern	ninal condi	tions as for	subgroup	9, except	Γ <sub>C</sub> = -125°0	D.								5	17	"
	t <sub>PHL1</sub>	"	114-117					- '											5	18	u
	t <sub>PLH2</sub>	"		-																	"
	t <sub>PHL2</sub>	"	118-121																7	20	
11	Same tests	s, terminal cor	nditions, and li	mits as for	subgroup	10, except	$T_C = -55^{\circ}C$	<b>)</b> .													

1/ pins not referenced are N/C.



- 4/ Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit output current l<sub>os</sub>.
- 5/ Tests shall be performed in sequence, attributes data only.
- 6/ Output voltages shall be either: (1) H ≥ 2.5 V minimum and L ≤ 0.4 V maximum when using a high-speed checker double comparator; (2) H ≥ 1.5 V and L ≤ 1.5 V when using high-speed checker single comparator.
- $\underline{7}$ /  $f_{MAX}$  limit is the frequency of the input pulse. The output frequency shall be one-half the input frequency.
- 8/ I<sub>IL</sub> limits shall be as follows:

	Min/M	ax limits in (μA) for o	rcuit
Test	Α	В	С
I <sub>IL1</sub>	0/-200	0/-200	0/-200
I <sub>IL4</sub>	0/-400	0/-400	0/-400

9/ A = 3.0 V minimum; B = 0.0 V or GND.

<u>10</u>/

Test	Mir	n/Max limits in m	A
	А	В	С
I <sub>0</sub>	-20/-112	-30/-112	-30/-112

# MIL-M-38510/371B

TABLE III. Group A inspection for device type 02.

.,	Group 77 mepoditor for device type cz.
Torminal conditions (nine not	designated may be high > 2.0 V; or low < 0.8 V; or open)

		MIL-STD-	Cases 2	2	3	4	5	7	8	t designate	10	12	13	14	15	17	18	19	20		Lir	nits	
Subgroup	Symbol	883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured	Lii	Tilles	Unit
			Test no.	1 CLR	1J	1 K	1CLK	1 PR	1Q	1 Q	GND	2 Q	2Q	2 PR	2CLK	2 K	2J	2 CLR	V <sub>CC</sub>	terminal	Min	Max	
1	V <sub>OH</sub>	3006	1	2.0 V	0.8 V	0.8 V	GND	0.8 V	-0.4 mA		GND								4.5 V	1Q	2.5		V
c = 25°C		и	2	0.8 V	0.8 V	0.8 V	GND	2.0 V		-0.4 mA	"								"	1 Q	"		
		u	3	2.0 V	2.0 V	2.0 V	<u>2</u> /	"	-0.4 mA		u								u	1Q	"		-
		u	4	2.0 V	0.8 V	0.8 V	<u>2</u> /	"		-0.4 mA	"								"	1 Q	"		
		u	5								"	-0.4 mA		2.0 V	GND	2.0 V	2.0 V	0.8 V	"	2 Q	"		"
		"	6								"		-0.4 mA	0.8 V	GND	2.0 V	2.0 V	2.0 V	u	2Q	"		
		u	7								"	-0.4 mA		2.0 V	<u>2</u> /	0.8 V	0.8 V	"	"	2 Q	"		"
		и	8								"		-0.4 mA	2.0 V	2/	2.0 V	2.0 V	"	"	2Q	"		-
	V <sub>OL</sub>	3007	9	0.8 V	0.8 V	0.8 V	GND	2.0 V	4 mA		u		0.41187	2.0 1		2.0 V	2.0 V		u	1Q		0.4	-
	- OL	u	10	2.0 V	"	"	GND	0.8 V		4 mA	"								"	1 Q		"	
			11	"	"	"	2/	2.0 V	4 mA		"								"	1Q			
		и	12	"	2.0 V	2.0 V	2/	2.0 V	4111/4	4 mA	"								"	1 Q			
		и	13				_				"	4 mA		0.8 V	GND	0.8 V	0.8 V	2.0 V	"			u	
		,,																		2 Q		-	
		"	14 15								"	4 mA	4 mA	2.0 V	GND	0.8 V	0.8 V	0.8 V 2.0 V	"	2Q		- "	<del></del>
			15									4 mA			<u>2</u> /	2.0 V	2.0 V	2.0 V		2 Q			
		и	16	40 1							"		4 mA	"	<u>2</u> /	0.8 V	0.8 V	2.0 V	"	2Q		"	-
	V <sub>IC</sub>		17	-18 mA																1 CLR		-1.5	
			18		-18 mA	40 4					"								u	1J			-
			19			-18 mA					-								-	1 K		-	
			20				-18 mA				u								u	1CLK			"
			21					-18 mA			"								"	1 PR			
			22								"			-18 mA					"	2 PR			"
			23								и				-18 mA				u	2CLK			-
			24								"					-18 mA			"	2 K		"	
			25								u						-18 mA		u	2J		-	
			26								"							-18 mA	u	2CLR		"	
	I <sub>IL2</sub>	3009	27	<u>3</u> /	0.4 V	5.0 V	GND	5.0 V			"								5.5 V	1J	<u>8</u> /	<u>8</u> /	μA
			28	5.0 V	5.0 V	0.4 V	GND	<u>3</u> /												1 K			
		ű	29								"			<u>3</u> /	GND	0.4 V	5.0 V	5.0 V	"	2 K	"		
		"	30								"			5.0 V	GND	5.0 V	0.4 V	<u>3</u> /	u	2J	"		
		"	31	<u>3</u> /	5.0 V	5.0 V	0.4 V	5.0 V			"			5.01/	0.41/	501/	501/	0/	"	1CLK 2CLK	"	- :	- :
	I <sub>IL4</sub>	и	32 33	0.4 V	5.0 V	5.0 V	5.0 V	GND			"			5.0 V	0.4 V	5.0 V	5.0 V	<u>3</u> /	"	1CLR	"		
		и	34	GND	5.0 V	5.0 V	5.0 V	0.4 V			"								"	1PR	"	"	"
		и	35								"			0.4 V	5.0 V	5.0 V	5.0 V	GND	"	2 PR	"		
		и	36								"			GND	5.0 V	5.0 V	5.0 V	0.4 V	"	2 CLR	"	"	"
	I <sub>IH2</sub>	3010	37	GND	2.7 V	GND	GND	GND			и								и	1J		20	"
		"	38	GND	GND	2.7 V	GND	GND			"					L			"	1K		"	
			39											GND	GND	2.7 V	GND			2 K			
		u	40	0.717	0115	01:15	0110	2110			"			GND	GND	GND	2.7 V	GND	u	2J		40	"
	I <sub>IH4</sub>		41	2.7 V	GND	GND	GND	GND												1 CLR		40	
		u	42	GND	4.5 V	GND	GND	2.7 V			"								"	1 PR			_ "
		и	43								"			2.7 V	GND	GND	4.5 V	GND	"	2 PR			"
		и	44								и			GND	GND	GND	GND	2.7 V	u	2 CLR		"	
	I <sub>IH5</sub>	и	45	GND	GND	GND	2.7 V	GND		<del>                                     </del>	"		<u> </u>	<del> </del>		1	<del>                                     </del>		"	1CLK		20	"
		u	46								u	Ì		GND	2.7 V	GND	GND	GND	u	2CLK		u	"

 TABLE III. Group A inspection for device type 02.

 Terminal conditions (pins not designated may be high ≥ 2.0 V; or low ≤ 0.8 V; or open).

 4
 5
 7
 8
 9
 10
 12
 13
 14
 15
 17
 18
 19
 20

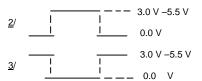
	1	MIL-STD-	Cases 2	2	3	4		7	ns (pins not	9	10	11gri <u>2 2.0</u>	13	≥ 0.6 V, 0	15 15	17	18	19	20		1:-	mits	
Subgroup	Symbol	883 method	Cases 2 Cases E, F	1	2	3	5 4	5	6	7	8	9	10	11	12	13	14	15	16	Measured	LII	IIIIS	Unit
		metriod	Test no.	1 CLR	1J	1 K	1CLK	1 PR	1Q	1 Q	GND	2 Q	2Q	2 PR	2CLK	2 K	2J	2 CLR	V <sub>cc</sub>	terminal	Min	Max	1
1	I <sub>IH7</sub>	3010	47	GND	7.0 V	GND	GND	GND			GND								5.5 V	1J		100	μΑ
Tc = 25°C		"	48	GND	GND	7.0 V	GND	GND			"								u	1 K		"	"
		"	49								"			GND	GND	7.0 V	GND	GND	"	2 K		"	"
		"	50								u			GND	GND	GND	7.0 V	GND	u	2J		ű	
	I <sub>IH9</sub>	ű	51	7.0 V	GND	GND	GND	GND			и								u	1 CLR		200	"
		и	52	GND	GND	GND	GND	7.0 V			"								u	1 PR		"	"
		и	53								"			7.0 V	GND	GND	GND	GND	"	2 PR		"	"
		"	54								"			GND	GND	GND	GND	7.0 V	и	2 CLR		"	"
	I <sub>IH10</sub>	u	55	GND	GND	GND	7.0 V	GND			"								ű	1CLK		100	"
			56	5.01/				OND	0.05.1/		"			GND	7.0 V	GND	GND	GND	"	2CLK	447	"	<u> </u>
	I <sub>0</sub> <u>4</u> /	3011	57 58	5.0 V GND				GND 5.0 V	2.25 V	2.25 V	"							-	"	1Q _	<u>11</u> /	<u>11</u> /	-
				GND				5.U V		Z.25 V	v	0.0=1/		5.5.1				01:5	"	1 Q			
			59								"	2.25 V		5.0 V				GND	"	2 Q			
1	<u> </u>		60								"		2.25 V	GND				5.0 V	"	2Q	"		<u> </u>
	Icc	3005	61 62	5.5 V GND	GND GND	GND GND	GND GND	GND 5.5 V			"			GND 5.5 V	GND GND	GND GND	GND GND	5.5 V GND	"	V <sub>CC</sub>		4	mA "
3	Same tests	s, terminal co	nditions, and		or subgroup		T <sub>C</sub> = -55°C	Э.															
7 <u>5</u> /	Truth	3014	63	Α	Α	Α	В	В	Н	L	GND	L	Н	В	В	Α	Α	Α	5.0 V	All	<u>6</u> /	<u>6</u> /	
Tc = 25°C	table	"	64	"	"	"	В	Α "	"	"	"	"	"	Α "	В	"	"	"	"	Outputs			<b>——</b>
	tests 10/	"	65 66	"	"	В	A A	"	"	"	"	"	"	"	A	В	"	"	"	"	- "	-	
	10/	"	67	u	u	"	В	и	u	и	"	и	"	"	В	"	и	"	"	ű	"	-	<del></del>
		"	68	u	u	"	A	u	L	Н	"	Н	L	"	A	"	"	"	"	u	"		
		"	69	u	u	"	В	u	"	"	"	u	"	"	В	"	"	"	"	u	"	"	
		и	70	В	u	u	u	u	"	u	"	u	"	"	u	"	"	В	"	и	"	"	
		"	71	A "	"	"		"	"		"			"		"	"	Α "	"	"	- "		1
		"	72 73	"	"	"	A B	"	H	L	"	L	H	"	A B	"	"	"	"	"	- "	-	-
		"	74	"	u	"	A	u	L	Н	и	H	L	"	A	"	"	"	"	"	"		
		"	75	u	ű	"	В	u	ī	H	"	H	ī	"	В	"	"	"	"	и	"		
		"	76	u	и	"	В	В	Н	L	u	L	Н	В	В	"	"	"	"	u	"	"	
		"	77	u	u	"	Α	В	"	u	u	u	"	В	Α	"	"	"	"	и	"	"	
		"	78	"	"	"	A	A	"	"	"	"	"	A	A	"	"	"	"	"	- "		1
		"	79	"	"		В		- "		"		- "	"	В	"	"	"	"	"	- "	-	-
		"	80 81	"	"	"	A B	"	L "	H	"	H		"	A B	"	"	"	"	"	"	"	<b>-</b>
		и	82	В	В	"	- "	"	"	"	"	"	"	"	"	"	В	В	"	и	"	"	<b></b>
		"	83	A	"	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"	"	"	
		"	84	u	и	"	"	u	"	"	"	u	"	"	Α	"	"	"	"	u	"	"	
		и	85	и	Α	"	u	и	u	и	u	и	"	"	Α	"	Α	"	и	и	"	ű.	
		"	86	"	"	"	"	"	"	"	"		"	"	В	"	"	"	"	"	"	"	<b>—</b>
1		- "	87 88	u	"	"	"	B	H	L	"	L_	Н	В	"	"	"	"	"	"	- "	- "	<del>                                     </del>
		"	89	u	u	"	A	Α "	L	L H	"	H	H L	A "	A	"	"	"	u	"	"	"	<del></del>
		"	90	и	u	u	В	и	"	"	"	"	"	"	В	"	"	"	"	u	"	"	<del></del>
		u	91	В	и	"	В	u	"	"	"	u	"	"	В	"	"	В	"	и	"	"	
		"	92	В	u	"	A	u	и	и	"	u	"	"	A	"	"	В	ű	"	"	"	
		"	93	Α	u	"	Α	"	"	"	"	"	"	"	Α	"	"	Α	и	и	"	"	
		"	94	"	"	"	В	"	"	"	"	"	"	"	В	"	"	"	"	"	"	"	
1	1	. "	95	"	В	Α	В	."	. "	"	"	."	. "	. "	В	Α	В	"	"	"	. "	"	ı

MIL-M-38510/371B

TABLE III. Group A inspection for device type 02.

Trials   3014   98   7   A   B   A   A   A   B   A   A   A   B   B								Termina	al condition	I ABLE III ns (nins no					< 0.8 V· o	r open)								
Symbol   S			MIL-STD-	Cases 2	2	3	4		7								17	18	19	20		Lii	nits	Г
78   Truth   Solid   S	Subgroup	Symbol	883	Cases			3	4	5	6	7										Measured			Unit
To = 25°C   stable   " 97				Test no.	1 CLR	1J	1 K	1CLK	1 PR	1Q	1 Q	GND	2 Q	2Q	2 PR	2CLK	2 K	2J	2 CLR	V <sub>CC</sub>	terminal	Min	Max	
			3014				Α	Α		L	Н	GND					Α			5.0 V	4			
10	$Tc = 25^{\circ}C$		"				"	"			L	"					"			"	Outputs			
Note   100   Note   N						"	"	"		H	L.	"					"	"		"	"	"	"	
8 / 101		10/	"			D	D	D		L	Н	"				Б.		D		"	"	"	"	
8   S   S   S   S   S   S   S   S   S			"								-	"								"	u	"	и	
Same tests: terminal conditions, and limits as for subgroup 7, except T <sub>c</sub> =+128°C and -88°C.   Table 1			"			u	u	u		Ĺ	H	u		l ï		u	"	"		"	u	"	u	
To 25°C 2	8 <u>5</u> /	Same tests	s, terminal co	nditions, and	limits as fo	or subgroup	7, except	T <sub>C</sub> = +125	o°C and -5	5°C.					•	•	•			•				
Fig. 4   105			Fig. 4							OUT		GND								5.0 V				MHz
Fig. 4   106   107   108   3.5 V   108	Tc = 25°C	<u>Z</u> /	u		3.5 V	3.5 V	GND	IN	3.5 V		OUT	"								"		"		"
Fig. 1   3003   107   N   3.5 V   SND   SND   SND   IN   N   N   OUT			"									"	OUT							"		"		"
Fig. 4												"		OUT	3.5 V	IN	GND	3.5 V	3.5 V	"	2Q			"
First   110   11		t <sub>PLH1</sub>		107				IN	3.5 V		OUT	и								"	1 CLR to 1 Q	3.0	13.0	ns
Fig. 10   110   10   1			u		3.5 V	GND	GND	IN	IN	OUT		"								66	1 PR to 1Q	"	"	и
Interest			"									"		OUT						"		"	"	"
Total Figure   Figu			u									"	OUT		3.5 V	IN	3.5 V	3.5 V	IN	"		"	ű	и
## 113   ## 114   ## 2   ## 115   ## 115   ## 116   ## 11		t <sub>PHL1</sub>	"							OUT		"								5.5 V	1 CLR to 1Q	5.0	15.0	"
Teht2			"		3.5 V	GND	GND	IN	IN		OUT	"								"	1 PR to 1 Q	"	"	"
tp_Hz			"	113								"	OUT			IN	GND	GND	3.5 V	"	2 PR to 2 Q	"	"	"
116   3.5 V   3.5 V   GND   IN   9/   OUT   "   OUT   9/   IN   GND   3.5 V   3.5 V   CLK to 2 \( \tilde{Q} \)   "			"	114								"		OUT	3.5 V	IN	3.5 V	3.5 V	IN	"	2 CLR to 2Q	"	"	"
## 117   ## 118   ## 119   ## 119   ## 119   ## 119   ## 119   ## 120   ##		t <sub>PLH2</sub>	"	115				IN	3.5 V	OUT		и								"	1CLK to 1Q	"	16.0	"
The content of the			"	116	3.5 V	3.5 V	GND	IN	<u>9</u> /		OUT	"								66	1CLK to 1 Q	"	и	"
tpHL2     " 119     3.5 V     3.5 V     GND     IN     9/     OUT     " 120     " 120 ICLK to 1Q     " 12LK to 2Q			"	117								"	OUT		<u>9</u> /	IN	GND	3.5 V	3.5 V	"	2CLK to 2 Q	"	"	"
## 120 9/ " " " 3.5 V OUT " OUT " 3.5 V IN GND 3.5 V 9/ " 2CLK to 2\overline{O} " " " 121			"									u		OUT	3.5 V	IN	GND	3.5 V	<u>9</u> /	"		"	"	"
# 121		t <sub>PHL2</sub>	"			3.5 V	GND "	IN "		OUT	OUT	"								"	_	"	18.0	"
## 122 ## OUT 9/ IN GND 3.5 V 3.5 V # 2CLK to 2Q # # 10  ## OUT 9/ IN GND 3.5 V 3.5 V # 2CLK to 2Q # # 15  ## 15			"		9/				3.5 V		001	"	OUT		3 5 V	INI	CND	2 5 V	0/	"		"	"	"
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			и									и	001	OUT						"		"		-
MAX   Fig. 4		1.	3003	122	1		1	·	1	1	1	1	1	001	3/	IIN	GIND	3.3 V	3.3 V	·	20LN 10 2Q			<del> </del>
TehE2	10	f <sub>MAX</sub>	Fig. 4																					MHz
tpHL1     "       tpLH2     "       tpHL2     "       tpHL2     "		t <sub>PLH2</sub>		Same tests a	and termin	al condition	ns as for si	ubgroup 9,	except T <sub>C</sub>	= +125°C												3	15	ns
tehi2 " 5 16 7 20		t <sub>PHL1</sub>	"																			5	17	"
FHI2 1 20		t <sub>PLH2</sub>	u																			5	18	"
11 Same tasts terminal conditions and limits as far subgroup 10 except T = .55°C		t <sub>PHL2</sub>	и																			7	20	"
To affice tests, terminal conditions, and infints as for subgroup 10, except 10 = -00 C.	11	Same tests	s, terminal co	nditions, and	limits as fo	or subgroup	10, excep	ot T <sub>C</sub> = -55	°C.	· · · · · ·														

1/ pins not referenced are N/C.



- Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit output current I<sub>os.</sub>
- 5/ Tests shall be performed in sequence, attributes data only.
- 6/ Output voltages shall be either: (1) H ≥ 2.5 V minimum and L ≤ 0.4 V maximum when using a high-speed checker double comparator; (2) H ≥ 1.5 V and L ≤ 1.5 V when using high-speed checker single comparator.
- 7/  $f_{MAX}$  limit is the frequency of the input pulse. The output frequency shall be one-half the input frequency.
- 8/ I<sub>IL</sub> limits shall be as follows:

	Min/M	ax limits in (μA) for o	ircuit
Test	Α	В	С
I <sub>IL2</sub>	0/-200	0/-200	0/-200
I <sub>IL4</sub>	0/-400	0/-400	0/-400

<u>10</u>/ A = 3.0 V minimum; B = 0.0 V or GND.

<u>11</u>/

Test	Min/Max	limits in (mA) fo	r circuit
	Α	В	С
I <sub>0</sub>	-20/-112	-30/-112	-30/-112

MIL-M-38510/371B

TABLE III. Group A inspection for device type 03.

	1	MU CTD	0 0		_		Termina										4.0	4.0	00			'4 -	$\overline{}$
		MIL-STD-	Cases 2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Lir	nits	╡
bgroup	Symbol	883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured			U
			Test no.	1CLK	1K	1J	1 PR	1Q	1 Q	2 Q	GND	2Q	2 PR	2J	2K	2CLK	2 CLR	1 CLR	V <sub>CC</sub>	terminal	Min	Max	-
1	V <sub>OH</sub>	3006	1	2.0 V	2.0 V	2.0 V	0.8 V	-0.4 mA	0.4.4		GND "							2.0 V	4.5 V	1Q	2.5		+
= 25°C			2	2.0 V	2.0 V		2.0 V		-0.4 mA									0.8 V		1 Q	"		
		"	3	2/	0.8 V	"	"	-0.4 mA			u							2.0 V	"	1Q	"		1
		и	4	<u>2</u> /	2.0 V	0.8 V	"		-0.4 mA		"							2.0 V	"	1 Q	"		T
		"	5			1				-0.4 mA	"	-	2.0 V	2.0 V	2.0 V	2.0 V	0.8 V		"	2Q	-		+
		и	6							-0.4 IIIA	u	-0.4 mA	0.8 V	2.0 V	2.0 V	2.0 V	2.0 V		"		"		+
		"								0.4.4	"	-0.41117			"		2.0 V		"	2 Q			╙
			7							-0.4 mA			2.0 V	0.8 V		<u>2</u> /				2 Q	,,		
		u	8								"	-0.4 mA	2.0 V	2.0 V	0.8 V	<u>2</u> /	"		"	2Q	"		┸
	V <sub>OL</sub>	3007	9	2.0 V	2.0 V	2.0 V	0.8 V		4 mA		"							2.0 V	"	1 Q		0.4	
		и	10	2.0 V	2.0 V	"	2.0 V	4 mA			и							0.8 V	u	1Q			t
		и	11	2/	0.8 V	"	"		4 mA		"							2.0 V	"	1 Q		u	T
		и	40	_	2011	001/	u	4 4		-	u	+		1	1	1		2011	и		<b> </b>	-	+
		u	12 13	<u>2</u> /	2.0 V	0.8 V	<del>-</del>	4 mA	<b></b>	4 mA		<del>                                     </del>	0.8 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	"	1Q _	-	"	+
			10			<u></u>				4 1117		<u> </u>	0.0 V	2.0 V	2.0 V	2.0 V	2.0 V			2 Q			L
		и	14								и	4 mA	2.0 V	2.0 V	и	2.0 V	0.8 V		"	2Q			Ĺ
		"	15			ļ		1		L	"	4 mA	"	0.8 V	"	<u>2</u> /	2.0 V		"	2Q	1	"	1
			16							4 mA				2.0 V	0.8 V	<u>2</u> /	2.0 V			2 Q			
	$V_{IC}$		17	-18 mA							и								"	1CLK		-1.5	T
			18		-18 mA						u								"	1K		-	
			19			-18 mA					"								"	1J		- "	1
			20				-18 mA						40 4						"	1PR		-:-	+
			21								-		-18 mA						-	2 PR		-	
			22								u			-18 mA					"	2J		-	
			23								"				-18 mA	40 4			"	2K		-	4
			24 25								"					-18 mA	-18 mA		"	2CLK	1	-	+
																	-10 IIIA			2 CLR			
			26								"							-18 mA	"	1 CLR			
	I <sub>IL2</sub>	3009	27	5.0 V	0.4 V	5.0 V	<u>3</u> /				"							5.0 V	5.5 V	1K	<u>8</u> /	<u>8</u> /	Г
		u	28	5.0 V	5.0 V	0.4 V	5.0 V				и							<u>3</u> /	"	1J	"		Ι
		"	29								"		5.0 V	0.4 V	5.0 V	5.0 V	3/		"	2J	"		Ļ
		"	30 31	0.4 V	F 0 \/	FOV	3/						<u>3</u> /	5.0 V	0.4 V	5.0 V	5.0 V	E 0 \/	"	2K 1CLK	- "		+
		u	31	0.4 V 0.4 V	5.0 V 5.0 V	5.0 V 5.0 V	5.0 V	1	1	1	"	+			1	1		5.0 V 3/	"	1CLK	"		+
	I <sub>IL4</sub>	u	33	5.0 V	5.0 V	5.0 V	0.4 V	<del>                                     </del>	1	<del>                                     </del>	"	<del>                                     </del>		1	<del>                                     </del>	1	1	5.0 V	"	1PR	"		t
	*1L4	и	34	5.0 V	5.0 V	5.0 V	5.0 V				и	<b>†</b>		<b>†</b>				0.4 V	и		"		t
		и	35		1	-	1			1	и	1	0.4 V	5.0 V	5.0 V	5.0 V	5.0 V		"	1 CLR	"	ű	╀
		u				ļ		1		1		1							"	2 PR		"	1
	I <sub>IL2</sub>	u	36 37		1	<del>                                     </del>	-	1		-		1	<u>3</u> / 5.0 V	5.0 V 5.0 V	5.0 V 5.0 V	0.4 V 0.4 V	5.0 V 3/		"	2CLK 2CLK	"	"	+
	<del>                                     </del>	"				<b> </b>		-			"	<del>                                     </del>							"	ZULN	"	"	+
	I <sub>IL4</sub>		38								. "		5.0 V	5.0 V	5.0 V	5.0 V	0.4 V		,,	2 CLR	"	"	1
	I <sub>IH2</sub>	3010	39	GND	2.7 V	5.0 V	GND				u							5.0 V	"	1K		20	t
		"	40	GND	5.0 V	2.7 V	5.0 V				"					L		GND	"	1J		"	1
		u	41								"	1	5.0 V	2.7 V	5.0 V	GND	GND		"	2J	ļ	"	+
		"	42 43	GND	GND	5.0 V	2.7 V					1	GND	5.0 V	2.7 V	GND	5.0 V	2/	"	2K		40	+
	I <sub>IH4</sub>			GIND	GND	5.0 V	2.1 V											<u>3</u> /		1 PR		40	1
		ű	44								"		2.7 V	5.0 V	GND	GND	<u>3</u> /		"	2 PR		"	
		и	45								"		<u>3</u> /	GND	5.0 V	GND	2.7 V		"	2 CLR		"	
		"	46	GND	5.0 V	GND	<u>3</u> /	1			"	1			1	1		2.7 V	"	1 CLR		"	1

TABLE III. Group A inspection for device type 03.

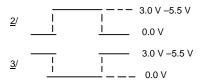
Termina	al condition	is (pins no	t designate	ed may be	high ≥ 2.0	V; or low	≤ 0.8 V; o	r open).
5	7	8	a	10	12	13	1/1	15

Singroup   Symbol   Mis-STD   Classe 2   2   3   4   5   7   8   9   10   12   13   14   15   17   18   19   20   Massund   Lipsets   Li		1	MIL-STD-	Cases 2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	1	1 11	mito	
																					l	LI	TIILS	
To - 29°C   100	Subgroup	Symbol			1	2	3	4	5	6	7	8	ဘ	10	11	12	13	14	15	16	Measured		'	Unit
The - 2FC				Test no.	1CLK	1K	1J	1 PR	1Q	1 Q	2 Q	GND	2Q	2 PR	2J	2K	2CLK	2 CLR	1 CLR	V <sub>cc</sub>	terminal	Min	Max	
To - 2 Feb	1	I <sub>IH5</sub>	3010	47	2.7 V	GND	GND	GND				GND							GND	5.5 V	1CLK		20	μA
Here	Tc = 25°C		"	48								"		GND	GND	GND	2.7 V	GND		"	2CLK		"	
Total   Control   Contro		luer	u		GND	7 0 V	5.0 V	GND				"							5.0 V	"			100	
Part		'IH7	и									и								"			"	
The			"		GIND	3.0 V	7.0 V	3.0 V				"		E 0 \/	701/	5.0.1/	CND	CND	GIVD	"			<del></del>	"
Les			"					ļ				"								"			<del></del> '	
Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>G</sub> = 125°C and V <sub>G</sub> tests are omitted.   Same tests		ļ												GND	5.0 V	7.0 V	GND	5.0 V			2K			
***   SS   GND   SJV   GND   30   SJV		I <sub>IH9</sub>			GND	GND	5.0 V	7.0 V											<u>3</u> /				200	
To - 2000   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 55°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = 45°C and V <sub>c</sub> tests are ornited.   Same tests, term												"									2 PR			
			ű									44		<u>3</u> /	GND	5.0 V	GND	7.0 V		ű	2 CLR		"	
			u	56	GND	5.0 V	GND	<u>3</u> /				"							7.0 V	u	1 CLR		"	
		Liuan	"	57	7 0 V	GND	GND	GND				"							GND	"	1CLK		100	
1		-1110	"		7.0 V	0.10	0.10	0.10	l		l	"		GND	GND	GND	7 N V	GND	0.10	"		<b>†</b>	"	
C		1.4/	2011					CND	25 V		<b> </b>	"		OIVD	CIVE	CIVD	7.0 V	CIAD	501/	"		Q/	0/	mΛ
Tuth   Solid		10 4/	3011						2.5 V	2.25 V		"								"		<u>9</u> /	9/	IIIA
-   -   -   -   -   -   -   -   -   -			и	61							2.25 V	u		5.0 V				GND		u		"	u	
			"	62								"	2.25.1/	CND				E O V		"		"	-	
Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = +125°C and V <sub>cc</sub> lests are omitted.   Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>c</sub> = +55°C and V <sub>cc</sub> lests are omitted.   Truth			2005		OND	OND	ONID	OND				- 4	2.25 V		OND	OND	OND		5 5 V	"			<del>  1</del> -	"
2 Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = +125°C and V <sub>IC</sub> tests are omitted.  3 Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = -55°C and V <sub>IC</sub> tests are omitted.  Truf = 25°C 19/  To = 25°C 19/		ICC	3005																				4.5	
3 Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = 45°C and V <sub>C</sub> tests are omitted.  Truth table tests    10				64	GND	GND	GND	5.5 V						5.5 V	GND	GND	GND	GND	GND		V <sub>CC</sub>			
10/ lests			3014			<u>В</u> "	A "	A "	L "	H "	H "	GND "	L "	A "	A "			B "		5.0 V		<u>6</u> /	<u>6</u> /	
1			"			u	"	u	"	"	"	и	"	и	и	и		и	"	и	outputs "	и	-	
Column	10/	lesis				^	В							ь	Ь	_		_	_	"	"	"	-	
1			u			. A	В "	. "	п "			66			В "	A	_	- A			"	"	<del></del>	
								- "						- "		<u> </u>							<u> </u>	
1					В																			
72					"	В	"	Α	L	Н	Н	"	L	A	"	В	"			"	"			
Total   Tota			ű		"	"	"	"	"	"	"	"	"	"	"	"	"	Α	Α	"	ű	"		
1			"			"	"		"	"	"	"	"	"	"	u		"	"	"	"	"	"	
1			"	74	В	"	"	"	"	"	"	"	"	"	"	ű	В	"	"	"	"	"	"	
76			"	75	"	"	"	В	Н	L	L	"	Н	В	"	"	"	"	"	"	"	"		
77			"	76	"	"	"	Α	"	"	"	"	"	Α	"	"	"	"	"	"	"	"	"	
1			"	77	Α	"	"	"	"	"	"	"	"	"	"	"	Α	"	"	"	"	"	"	
1			и	78	В	"	"	"	"	"	"	es .	"	"	"	tt	В	"	"	"	ű	"		
1			u		"	"	Α	"	L	Н	Н	u	L	"	Α	u		В	В	"	"	"	"	
**************************************			u		"	"	"	"				"	"	"		u	"			"	"	"		
			"		Δ	"	"	"	"	"	"	"	и	"	"	u	Δ	"	"	u	"	"	"	
**************************************			и			"	"	ű	н			и	н	и	и	и		и	"	u	"	и	и	
" 84 " " A " " A " " A " " A " " A " " A " " A " " A " " A " A " A " A " A " A " A " A " A " A " A " A " A " A " A " A " A " A " A A " A			и			۸	P	P	"		"	"	"	P	P	٨		"	"	"	u	"	"	
***			"				"		"		"	"	"		"			"		u	"	"	"	
" 86 B " " " L H H " " L " " " B " " " " " " " " " " " " "			u			u	"	A	"	и		μ	μ	A	и			"		u	и	"		
" 87 A " A B H " " H B A " A B B " " " " " " " " " " " " " "									<u> </u>															
" 88 B " " A L " " " L A " " B " " A A I " " " " " " " " " " " " " " "									_	H	H		_								<u>"</u>		<u> </u>	
" 89 " " " " " " " " " " " " " " " " " "							A			"	- "		Н		A					"	"	"		
" 90 A " " " " " " " " " " A " " " " " " "			"		В	"	"	Α	L	"	"	"	L	Α	"	ű	В			"	"	"	"	
" 91 B " " " H L L " H " " B " " " " " " " " " " " " " " "			u		"	"	"	"	"	"	"	"	"	"	"	u	"			"	"	"	"	
" 92 A " " " " " " " " " A " " " " " " " "			"	00	Δ	"	"	"	"	"	"	"	"	"	"	u	Α	"	"	u	"	"	u	
92 A       A       A         A																								
" 93 B " " L H H " L " " B " " " " " " " " " " " " " " "			и	91	В		"				L	u		u	u			"	"	"	"	"	"	
			и	91	В		"				L "	"		"	u			"	"	u	u	"	u	

							Termina		TABLE III is (pins no		ed may be			≤ 0.8 V; o	or open).								
		MIL-STD-	Cases 2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Lir	nits	
Subgroup	Symbol	883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured			Unit
			Test no.	1CLK	1K	1J	1 PR	1Q	1 Q	2 Q	GND	2Q	2 PR	2J	2K	2CLK	2 CLR	1 CLR	V <sub>cc</sub>	terminal	Min	Max	
8	Same tests	s, terminal co	nditions, and	limits as fo	or subgroup	7, except	T <sub>C</sub> = +125	5°C and -5	5°C.														
9	f <sub>MAX</sub>	Fig. 4	94	IN	3.5 V	3.5 V	3.5 V	OUT			GND							3.5 V	5.0 V	1Q	25		MHz
Tc = 25°C	<u>7</u> /	"	95	IN	3.5 V	3.5 V	3.5 V		OUT		"							3.5 V	"	1 Q	"		"
		ű	96							OUT	"		3.5 V	3.5 V	3.5 V	IN	3.5 V		"	2 Q	"		44
		"	97			0115					"	OUT	3.5 V	3.5 V	3.5 V	IN	3.5 V		"	2Q	"		"
	t <sub>PLH1</sub>	3003	98	IN	3.5 V	GND	IN	OUT	OUT		"							3.5 V	"	1 PR to 1Q	3	15	ns "
			99	IN	GND	3.5 V	3.5 V		OUT	OUT.			0.51/	0.51/	CNID			IN		1 CLR to 1 Q			
			100							OUT	"		3.5 V	3.5 V	GND	IN	IN			2 CLR to 2 Q			
			101									OUT	IN	GND	3.5 V	IN	3.5 V			2 PR to 2 Q	"		
	t <sub>PHL1</sub>	"	102	IN	3.5 V	GND	IN		OUT		"							3.5 V	"	1 PR to 1 Q	4	18	"
		"	103	IN	GND	3.5 V	3.5 V	OUT			"							IN	"	1 CLR to 1Q	"	"	"
		ű	104								"	OUT	3.5 V	3.5 V	GND	IN	IN		"	2 CLR to 2Q	"	ű	"
		ű	105							OUT	"		IN	GND	3.5 V	IN	3.5 V		"	2 PR to 2 Q	44	u	"
	t <sub>PLH2</sub>	íí	106	IN	3.5 V	3.5 V	3.5 V	OUT			"							3.5 V	"	1CLK to 1Q	3	15	"
		"	107	IN	3.5 V	3.5 V	3.5 V		OUT		"							3.5 V	"	1CLK to 1 Q	"	ű	u
		"	108							OUT	"		3.5 V	3.5 V	3.5 V	IN	3.5 V		"	2CLK to 2 Q	"	"	"
		"	109	INI	0.5.1/	0.5.1/	0.5.1/	OUT			"	OUT	3.5 V	3.5 V	3.5 V	IN	3.5 V	0.5.1/	"	2CLK to 2Q	-	40	"
	t <sub>PHL2</sub>	"	110 111	IN IN	3.5 V 3.5 V	3.5 V 3.5 V	3.5 V 3.5 V	OUT	OUT		и						-	3.5 V 3.5 V	"	1CLK to 1Q	5	19	"
		u	112	IIN	3.5 V	3.5 V	3.5 V		001	OUT	"		3.5 V	3.5 V	3.5 V	IN	3.5 V	3.5 V	"	1CLK to 1 Q	44	"	"
		"	113							001	u	OUT	3.5 V	3.5 V	3.5 V	IN	3.5 V		"	2CLK to 2Q 2CLK to 2Q	u	u	"
10	f <sub>MAX</sub> <u>7</u> /		1113									001	3.5 V	3.5 V	3.3 V	IIN	3.5 V	I		ZOLK 10 ZQ	25		MHz
Tc = 125°C																					3	20	ns
		Same tests	and terminal o	conditions	as for subo	group 9, ex	cept T <sub>C</sub> =	+125°C.													4	22	"
	t <sub>PHL1</sub>																				3	18	"
	t <sub>PLH2</sub>																						"
	t <sub>PHL2</sub>																				5	23	

MIL-M-38510/371B

1/ pins not referenced are N/C.



- 4/ Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit output current I<sub>os</sub>.
- 5/ Tests shall be performed in sequence, attributes data only.
- 6/ Output voltages shall be either: (1) H ≥ 2.5 V minimum and L ≤ 0.4 V maximum when using a high-speed checker double comparator; (2) H ≥ 1.5 V and L ≤ 1.5 V when using high-speed checker single comparator.
- Z/ f<sub>MAX</sub> limit is the frequency of the input pulse. The output frequency shall be one-half the input frequency.
- $\underline{8}$ /  $I_{IL}$  limits shall be as follows:

	Min/M	ax limits in (μA) for c	ircuit
Test	Α	В	С
I <sub>IL2</sub>	0/-200	0/-200	0/-200
I <sub>IL4</sub>	0/-400	0/-400	0/-400

9/ Io limits are as follows:

Test	Min/Max	limits in (mA) fo	r circuit
	А	В	С
I <sub>0</sub>	-20/-112	-30/-112	-30/-112

10/ A = 3.0 V minimum; B = 0.0 V or GND.

# MIL-M-38510/371B

TABLE III. Group A inspection for device type 04.

		.,	<u>0.0</u>	<u> </u>	pootion io	. 401.00 1	<del>po o .</del> .		
Termin	al conditi	ons (pins	not design	gnated i	may be hig	gh ≥ 2.0 V	$or low \le 0$	0.8 V; or o	pen).
6	7	8	9	10	11	12	13	14	15

															gh ≥ 2.0 V												
Subgroup	Symbol	MIL-STD- 883	Cases 2, R, S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured	Lim	its	Unit
		method	Test no.	<del>oc</del>	1D	2D	3D	4D	5D	6D	7D	8D	GND	CLK	8Q	7Q	6Q	5Q	4Q	3Q	2Q	1Q	V <sub>cc</sub>	terminal	Min	Max	
1	V <sub>OH</sub>	3006	1	0.8 V	2.0 V								GND	1/								-1.0 mA	4.5 V	1Q	2.4	<b>-</b>	V
c = 25°C	- 011	"	2	"		2.0 V							"	"							-1.0 mA		"	2Q	-		-
		"	3	"			2.0 V						ii .	и						-1.0 mA			"	3Q			"
		"	4	"				2.0 V					"	"					-1.0 mA					4Q			"
		"	5	"					2.0 V				"	u				-1.0 mA						5Q			"
		"	6	"						2.0 V			"	u			-1.0 mA							6Q		Ш	
		"	7	"							2.0 V		ű	"		-1.0 mA							"	7Q		<u> </u>	
			8	"								2.0 V	"	"	-1.0 mA								- "	8Q		<u> </u>	۰
	V <sub>OL</sub>	3007	9	"	0.8 V	0.01/							"	"							40 4	12 mA	"	1Q		0.4	ـــّـــ
		"	10 11	"		0.8 V	0.8 V						"	"						12 mA	12 mA		-	2Q 3Q		"	<del>-</del>
		"	12	"			U.8 V	0.8 V					"	u					12 mA	12 MA				4Q		-	-
		"	13	"				U.6 V	0.8 V				"	u				12 mA	12 IIIA					5Q		"	-
		"	14	"					0.0 V	0.8 V			íí.	и			12 mA	12 111/4						6Q		<del></del>	-
		"	15	"	1	1	1			0.0 V	0.8 V		"	"	1	12 mA		1						7Q		"	
		"	16	"	1		1				T	0.8 V	"	и	12 mA	1							"	8Q		"	
ļ	V <sub>IC</sub>		17	-18 mA		1							"											OC OC		-1.5	и
							ļ						и		ļ	ļ										<u> </u>	
		<u> </u>	18		-18 mA	40 *	<b> </b>				ļ	ļ	"		1	1			-		ļ	-	-:-	1D		⊢	- "
		<u> </u>	19 20		1	-18 mA	-18 mA			1	-	<b> </b>	"		1	1	1	1	-		-	-		2D 3D	-	<u> </u>	
			21				-16 MA	-18 mA					"											4D		-	"
			22					-10 IIIA	-18 mA				"											5D		-	"
			23						-10 IIIA	-18 mA			íí.											6D		<del></del>	"
			24							-1011174	-18 mA		"											7D		-	"
			25								1011111	-18 mA	"											8D		-	"
			26									101121	"	-18 mA									"	CLK		"	"
ŀ	I <sub>IL3</sub>	3009	27	0.4 V									"										5.5 V	OC	<u>6</u> /	<u>6</u> /	μΑ
		"											.,													L	<u>Ļ`</u>
			28		0.4 V																		"	1D		<u> </u>	<u>⊢"</u>
			29			0.4 V	0.417																	2D		ـــَـــ	Щ.
		"	30			1	0.4 V	0.41/					"											3D	-	<del>-</del>	<del>-</del>
		"	31 32		-		-	0.4 V	0.4 V				"		-	-							-	4D 5D	-	<del></del>	<del>-</del>
		"	33						0.4 V	0.4 V			"											6D		-	-
		"	34							0.4 V	0.4 V		"											7D		-	-
		"	35								0. <del>4</del> V	0.4 V	**										"	8D	u	"	"
		"	36									0.7 1	"	0.4 V										CLK	"	"	-
ŀ	I <sub>IH3</sub>	3010	37	2.7 V									"	0									"	OC OC		20	-
	1115																									<u> </u>	
		"	38		2.7 V	0 = 17	ļ						"											1D		- "	<u> </u>
			39		<del>                                     </del>	2.7 V	0 - 17					<u> </u>	"		<u> </u>	<u> </u>								2D			ـــّـــ
		"	40		<b> </b>	<u> </u>	2.7 V	0.71/			ļ				ļ	ļ							-	3D		<del>-</del>	
		"	41		1	1	1	2.7 V	271/	1	-	<b> </b>	"		1	1	1	1	-		-	-	- "	4D	-		<del>-</del>
		"	42 43		<b> </b>	<del>                                     </del>	<b> </b>		2.7 V	2.7 V	<b> </b>	<b> </b>	"		<b> </b>	<b> </b>	-	-						5D 6D		"	-
		"	43		1	1	1			2.1 V	2.7 V		"		1	1		1						7D		"	
		"	45		<del>                                     </del>	<b></b>	1				Z.1 V	2.7 V	66		1	1		<b></b>						8D		"	
		u	46									Z., V	"	2.7 V										CLK		"	-
İ	I <sub>IH8</sub>	"	47	7.0 V									"										"			100	"
	10																							OC		<u> </u>	<u> </u>
		"	48		7.0 V		<b>!</b>					ļ	"		1	1		1						1D		<b>└</b> "	₩
		"	49		<b> </b>	7.0 V	7.017				ļ		"		ļ	ļ							-	2D		<del>-</del> —	- "
		"	50		1	1	7.0 V	701/		1	-	<b> </b>	"		1	1	1	1	-		-	-	-	3D	-	<del>-</del>	+:
		"	51		<del>                                     </del>	1	<del>                                     </del>	7.0 V	7.0 V		<del>                                     </del>	-	"		-	-		-						4D 5D		-	<del>  "</del>
		"	52		<b> </b>	<del>                                     </del>	<b> </b>		7.U V	701/	<b> </b>	<b> </b>	"		<b> </b>	<b> </b>	-	-						6D		<del></del>	+
		"	53 54		<del>                                     </del>	<del>                                     </del>	<del>                                     </del>	<b> </b>		7.0 V	7.0 V	<b> </b>	"	1	<del>                                     </del>	<del>                                     </del>	<b> </b>	-	-		-	-	-	7D	-	<del></del>	+
		u	55		<del>                                     </del>		<del>                                     </del>				7.0 V	7.0 V	"		1	-								8D		-	-
		u	56		<del>                                     </del>	1	<del>                                     </del>				<del>                                     </del>	7.5 V	"	7.0 V	1	1		1						CLK		-	-
			56		1	1	1			l	L	L		7.0 V	1	1	l	l	L	l	L	L		CLK	l		_

								Torr	minal aa				A inspec		≥ 2.0 V; c		0 \/· or c	non)									
Subgroup	Symbol	MIL-STD- 883	Cases 2, R, S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured	Lir	mits	Unit
		method	Test no.	<del>OC</del>	1D	2D	3D	4D	5D	6D	7D	8D	GND	CLK	8Q	7Q	6Q	5Q	4Q	3Q	2Q	1Q	V <sub>CC</sub>	terminal	Min	Max	
1	I <sub>O</sub> <u>2</u> /	3011	57	GND	5.0 V								GND	1/								2.25 V	5.5 V	1Q	8 /	8 /	mA
Tc = 25°C		"	58	"		5.0 V							"	ű							2.25 V		"	2Q	-	-	"
		"	59	"			5.0 V						"	и						2.25 V			"	3Q		"	"
		"	60	"				5.0 V					"	"					2.25 V				"	4Q		"	"
		"	61	"					5.0 V				"	"				2.25 V					"	5Q		"	"
		"	62	u						5.0 V			"	"			2.25 V						"	6Q		"	"
		"	63	"							5.0 V		"	"		2.25 V							"	7Q	"	"	"
		u	64	u								5.0 V	"	"	2.25 V								"	8Q			- "
	I <sub>OZH</sub>		65	5.0 V	2.0 V								"	"								2.7 V	"	1Q		20	μA
			66	"		2.0 V	1 /						"	"							2.7 V		- "	2Q			
			67	"			2.0 V	0.01/											0.7.1	2.7 V			- "	3Q		<u> </u>	اــــّـــا
		-	68					2.0 V	2.0 V									0.71/	2.7 V	1			- "	4Q 5Q			
			69 70	"					2.0 V	2.0 V			и	"			2.7 V	2.7 V					"	6Q			-
			71	"						2.0 V	2.0 V		"	и		2.7 V	2.7 V						"	7Q		11	"
			72	и							2.0 V	2.0 V	"	и	2.7 V	Z.1 V							"	8Q		-	-
	I <sub>OZL</sub>		73	5.0 V	0.8 V							2.0 V	"	"								0.4 V	"	1Q		-20	"
	-OZL		74	"	0.0 1	0.8 V							"	"							0.4 V	0	"	2Q		"	"
			75	"			0.8 V						"	"						0.4 V			"	3Q		"	"
			76	"				0.8 V					и	"					0.4 V				"	4Q		"	"
			77	"					0.8 V				"	u				0.4 V					"	5Q		"	u
			78	"						0.8 V			и	"			0.4 V						"	6Q		"	íí .
			79	"							0.8 V		"	"		0.4 V							"	7Q		"	"
			80	"								0.8 V	"	"	0.4 V								"	8Q			"
	I <sub>CCH</sub>	3005	81	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	"	<u>1</u> /									"	V <sub>CC</sub>		18	mA
	I <sub>CCL</sub>	"	82	"	GND	GND	GND	GND	GND	GND	GND	GND	"	"									"	V <sub>CC</sub>		27	"
	I <sub>CCZ</sub>	"	83	5.0 V	GND	GND	GND	GND	GND	GND	GND	GND	"	"									"	V <sub>CC</sub>		28	u
2	Same tes	sts, terminal	conditions,	and limits	s as for su	bgroup 1	, except	T <sub>C</sub> = +125	°C and	V <sub>IC</sub> tests	are omi	ted.	•		•						•	•		•	•		
3	Same tes	sts, terminal	conditions,	and limits	s as for su	ıbgroup 1	, except	T <sub>C</sub> = -55°(	C and V <sub>I</sub>	c tests ar	e omitte	d.															
7 <u>3</u> /	Truth	3014	84	В	Α	A	A	Α	Α	Α	Α	Α	GND	В	Х	Х	Х	Х	Х	Х	Х	Х	5.0 V	All	4/	4/	T
Tc = 25°C	Table	"	85	"	A	A	A	A	A	A	A	A	"	A	Н	H	H	Н	H	H	H	H	U.U.V	outputs			
10 = 20 0	Tests	"	86	"	В	В	В	В	В	В	В	В	и	A	и	"	"	"	"	"	"	"	"	"			
	7/	"	87	"	"	"	"	"	"	"	"	"	"	В	"	"	"	"	"	"	"	"	"	"			
	[	"	88	"	"	"	"	u	и	и	"	"	и	Α	L	L	L	L	L	L	L	L	"	"	"	"	
		"	89	"	Α	Α	Α	Α	Α	Α	Α	Α	"	В	L	L	L	L	L	L	L	L	"	"		"	
		"	90	"	Α	Α	Α	Α	Α	Α	Α	Α	"	Α	Н	Н	Н	Н	Н	Н	Н	Η	"	"		"	
8	Same tes	sts, terminal	conditions,	and limits	s as for su	bgroup 7	, except	T <sub>C</sub> = +125	°C and	-55°C.																	
9	f <sub>MAX</sub>	Fig. 4	91	GND	IN								"	IN								OUT	5.0 V	1D	35		MHz
Tc = 25°C	<u>5</u> /	"	92	"		IN							"	"							OUT		"	2D	"		"
1	-	"	93	"			IN						и	u					Ì	OUT			"	3D			"
		"	94	"				IN					"	u					OUT				"	4D	"		"
	1	"	95	"					IN				**	"				OUT					"	5D			"
	1	"	96	"						IN			"	"			OUT			1			"	6D			"
1		"	97	"							IN	L	"	"		OUT								7D		Ь—	<b>└</b> "
1	l		98									IN	"	"	OUT								"	8D	. "	1	

TABLE III. <u>Group A inspection for device type 04</u>. Terminal conditions (pins not designated may be high  $\geq 2.0 \text{ V}$ ; or low  $\leq 0.8 \text{ V}$ ; or open).

Subgroup	Symbol	MIL-STD-		1	2	3	4	5	6	7	8	9	10	11	gn ≥ 2.0 12	V; or low 13	≤ 0.8 V; 14	15	16	17	18	19	20	Measured	Lir	nits	Unit
		883 method	2, R, S Test no.	<del>oc</del>	1D	2D	3D	4D	5D	6D	7D	8D	GND	CLK	8Q	7Q	6Q	5Q	4Q	3Q	2Q	1Q	V <sub>CC</sub>	terminal	Min	Max	
9	t <sub>PLH2</sub>	3003	99	GND	IN								GND	IN			<u> </u>					OUT	5.0 V	CLK to 1Q	4	14	ns
Tc = 25°C	YFLH2	Fig. 4	100	"		IN							"	"							OUT		"	CLK to 2Q			"
		u	101	u			IN						u	"						OUT				CLK to 3Q	"	"	"
		"	102	"				IN			<u> </u>		"	"				OUT.	OUT				- :	CLK to 4Q	- "	-:-	"
		"	103 104	"					IN	IN			"	"			OUT	OUT					-	CLK to 5Q CLK to 6Q		-	
		u	105	u							IN		u	"		OUT	001							CLK to 7Q			"
		"	106	u								IN	"	"	OUT									CLK to 8Q	"		"
	t <sub>PHL2</sub>	3007	107	"	IN								"	"								OUT		CLK to 1Q	"	"	"
		"	108 109	"	1	IN	IN						"	"			1	1		OUT	OUT	1	-	CLK to 2Q CLK to 3Q		"	- "
	1	"	110	"			IIN	IN					"	"					OUT	001				CLK to 4Q		-	-
	ľ	"	111	u					IN				"	"				OUT						CLK to 5Q	"	"	"
		"	112	и						IN			"	"			OUT							CLK to 6Q	"	"	"
		"	113	"							IN	18.1	"	"	OUT	OUT	ļ	1					-:-	CLK to 7Q	-:-		
	t <sub>PZL</sub>	"	114 115	IN	GND							IN	"	1/	OUT		1					OUT		CLK to 8Q	"	18	"
	ΨZL			1111	OND									10								001		OC to 1Q		10	<u> </u>
		44	116	ű		GND							"	"							OUT			OC to 2Q	"		"
		44	117	"			GND						"	"						OUT				OC to 3Q	"		"
		44	118	u				GND					"	44					OUT					OC to 4Q	44		"
		"	119	u					GND				**	"				OUT						OC to 5Q	"		44
	İ	66	120	u						GND			u	"			OUT							OC to 6Q	и		"
		"	121	u							GND		ii .	"		OUT								OC to 7Q	"	"	"
		44	122	u								GND	"	"	OUT									OC to 8Q	и		"
	t <sub>PZH</sub>	"	123	u	5.0 V								"	"								OUT		OC to 1Q	"	"	"
		44	124	u		5.0 V							"	"							OUT			OC to 2Q	"	"	"
		"	125	u			5.0 V						"	"						OUT				OC to 3Q	"	и	"
		"	126	u				5.0 V					"	"					OUT					OC to 4Q	"	"	"
		"	127	u					5.0 V				"	"				OUT						OC to 5Q	"	"	"
		66	128	u						5.0 V			"	"			OUT							OC to 6Q	"		"
	ĺ	66	129	u							5.0 V		"	"		OUT								OC to 7Q	"		"
		44	130	u								5.0 V	"	"	OUT									OC to 8Q	"	"	"
l	t <sub>PLZ</sub>	"	131	u	GND								"	"								OUT		OC to 1Q	2	12	"
		44	132	u		GND							íí	"							OUT			OC to 2Q	"		"
		"	133	u			GND						и	"						OUT				OC to 3Q	"	"	"
		"	134	u				GND					и	"					OUT				"	OC to 4Q	"	и	"
		u	135	u					GND				и	"				OUT						OC to 5Q	"	u	"
		и	136	u						GND			и	"			OUT						"	OC to 6Q	и	и	"
		u	137	u				İ			GND		"	"		OUT							"	OC to 7Q	"	u	"
	ĺ	"	138	u								GND	"	"	OUT									OC to 8Q	"	"	"

								T	erminal o	conditions	s (pins no	ot design	ated may	y be high	≥ 2.0 V;	or low $\leq 0$	).8 V; or o	open).									
Subgroup	Symbol	MIL-STD- 883	Cases 2, R, S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured	Lir	nits	Unit
		method	Test no.	<u>oc</u>	1D	2D	3D	4D	5D	6D	7D	8D	GND	CLK	8Q	7Q	6Q	5Q	4Q	3Q	2Q	1Q	V <sub>CC</sub>	terminal	Min	Max	
9 Tc = 25°C	t <sub>PHZ</sub>	3003 Fig. 4	139	"	5.0 V								GND	<u>1</u> /								OUT	5.0 V	OC to 1Q	2	10	"
		ű	140	u		5.0 V							ű	u							OUT		"	OC to 2Q	"	"	"
		"	141	"			5.0 V						"	"						OUT				OC to 3Q		"	"
		44	142	u				5.0 V					"	"					OUT				=	OC to 4Q		"	"
		44	143	*					5.0 V				"	"				OUT					=	OC to 5Q		"	"
		и	144	u						5.0 V			es .	es .			OUT						=	OC to 6Q		"	"
		44	145	*							5.0 V		"	"		OUT							=	OC to 7Q		"	"
		"	146	u								5.0 V	ee	ee	OUT								•	OC to 8Q		"	"
10 Tc = 25°C	f <sub>MAX</sub>																								30		MHz
	t <sub>PLH2</sub>																								4	18	ns
	t <sub>PHL2</sub>																								"	17	"
	t <sub>PZL</sub>	Same tests	s and termi	inal condi	tions as f	or subgr	oup 7, ex	cept T <sub>C</sub>	= +125°C	).															"	21	"
	t <sub>PZH</sub>																								и	"	"
	t <sub>PLZ</sub>																								2	18	"
	$t_{PHZ}$																								2	12	"
11	Same tes	sts, termina	l conditions	s, and limi	its as for	subgrou	р 10, ехс	ept T <sub>C</sub> =	-55°C.																		

1/	Apply	ī	<del></del>	- 3.0 V –5.5 V
_		!	<u> </u>	0.0 V pulse prior to test.

- 2/ Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit output current I<sub>os</sub>.
- 3/ Tests shall be performed in sequence, attributes data only.
- 4/ Output voltages shall be either: (1) H  $\geq$  2.4 V minimum and L  $\leq$  0.4 V maximum when using a high-speed checker double comparator; (2) H  $\geq$  1.5 V and L  $\leq$  1.5 V when using high-speed checker single comparator.
- 5/  $f_{MAX}$  limit is the frequency of the input pulse. The output frequency shall be one-half the input frequency.
- 6/ I<sub>IL</sub> limits shall be as follows:

	Min/M	ax limits in (μA) for o	ircuit
Test	Α	В	С
I <sub>IL3</sub>	0/-200	0/-200	0/-200

 $\underline{7}$ / A = 3.0 V minimum; B = 0.0 V or GND.

<u>8</u>/

56

Test	Mir	n/Max limits in m	A
	А	В	С
I <sub>0</sub>	-20/-112	-30/-112	-30/-112

Terminal conditions (pins not designated may be high  $\geq$  2.0 V; or low  $\leq$  0.8 V; or open). Subgroup Symbol MIL-STD-Cases 12 18 19 20 Measured Limits Unit 13 16 17 2, R, S 883 method Test no. 1D 2D 3D 4D 5D 6D 7D 8D GND CLK Min Max V<sub>CC</sub> terminal <u>oc</u> 8 Q 7 Q 6 Q 5 Q 4 Q 3 Q 2 Q 1 Q 3006 0.8 V 0.8 V GND -1.0 mA 4.5 V 1/ 1 Q Tc = 25°C 0.8 V -1.0 mA 2 2 Q 3 0.8 V -1.0 mA 3 Q 0.8 V -1.0 mA 4 Q 0.8 V -1.0 mA 5 5 Q -1.0 mA 0.8 V 6 6 Q 0.8 V -1.0 mA 7 7 Q 0.8 V -1.0 mA 8 8 Q 3007 2.0 V 12 mA 0.4  $V_{OL}$ 9 1 Q 10 12 mA 2 Q 11 2.0 V 12 mA 3 Q 12 2.0 V 12 mA 4 Q 13 2.0 V 12 mA 5 Q 2.0 V 14 12 mA 6 Q 15 2.0 V 12 mA 7 Q 16 2.0 V 12 mA 8 Q  $V_{IC}$ 17 -18 mA -1.5  $\overline{oc}$ -18 mA 1D 18 19 -18 mA 2D 20 -18 mA 3D 21 -18 mA 4D 22 -18 mA 5D 23 -18 mA 6D 24 -18 mA 7D 25 -18 mA 8D 26 -18 mA CLK 0.4 V 5.5 V 3009 27 6/ μΑ  $\overline{\text{oc}}$ 0.4 V 1D 28 29 0.4 V 2D 30 0.4 V 3D 31 0.4 V 4D 32 0.4 V 5D 33 0.4 V 6D 34 0.4 V 7D 35 0.4 V 8D 0.4 V CLK 36 3010 37 2.7 V 20 <u>oc</u> 38 2.7 V 1D 39 2.7 V 2D 2.7 V 40 3D 41 2.7 V 4D 42 2.7 V 5D 43 2.7 V 6D 44 2.7 V 7D 45 2.7 V 8D 46 2.7 V CLK

Te	erminal c	onditions	(pins no	t design:	ated may	be high	≥ 2.0 V; c	or low $\leq 0$ .	8 V; or op	en).
1	•	-	_	•	•		•	4		ì

Subgroup	Symbol	MIL-STD-	Cases	1	2	3	4	16	erminal c	onditions 7	s (pins no	ot designa	ated may	be high	≥ 2.0 V; c	or low ≤ 0. 13	8 V; or or 14	oen). 15	16	17	18	19	20	Measured	Lit	mits	Unit
oubg.oup	C)	883	2, R, S																								_
		method	Test no.	OC	1D	2D	3D	4D	5D	6D	7D	8D	GND	CLK	8 Q	7 Q	6 Q	5 Q	4 Q	3 Q	2 Q	1 Q	V <sub>CC</sub>	terminal	Min	Max	
1 Tc = 25°C	I <sub>IH8</sub>	"	47	7.0 V									GND										5.5 V	<u>oc</u>		100	μА
.0 - 20 0		"	48		7.0 V								"										"	1D		"	"
		"	49			7.0 V							"										"	2D		"	-
		"	50 51				7.0 V	7.0 V					"										- "	3D 4D		- "	- "
		"	52					7.0 V	7.0 V				"										"	5D	1		-
		"	53						7.01	7.0 V			"										"	6D		"	-
		"	54								7.0 V		"										"	7D		"	"
		"	55									7.0 V	u	701/									- "	8D		"	+:
	I <sub>0</sub> <u>2</u> /	3011	56 57	GND	GND								"	7.0 V <u>1</u> /								2.25 V	"	CLK 1 Q	-15	-110	mA
	_					ONE							"	- "							0.05.1/						
			58			GND															2.25 V		"	2 Q			
		"	59				GND						"	"						2.25 V			"	3 Q	"	"	
		"	60					GND					u	"					2.25 V				"	4 Q	"	"	"
		"	61						GND				u	и				2.25 V					"	5 Q		"	
		"	62							GND			u	u			2.25 V						"	6 Q		"	-
		"	63								GND		u	и		2.25 V							"			"	"
		"									OND	GND	"	"	2.25.1/	2.20 V								7 Q			
			64									GND			2.25 V									8 Q			
	I <sub>OZH</sub>		65	5.0 V	0.8 V								"	"								2.7 V	"	1 Q		20	μΑ
			66	"		0.8 V							u	"							2.7 V		"	2 Q		"	"
			67	u			0.8 V						u	u						2.7 V			"	3 Q		"	"
			68	"				0.8 V					"	"					2.7 V				"	4 Q		"	"
			69	es .					0.8 V				"	es .				2.7 V					"	5 Q		"	"
			70	ű						0.8 V			u	и			2.7 V						"	6 Q		"	"
			71	и							0.8 V		u	и		2.7 V							"	7 Q		"	"
			72	"								0.8 V	и	"	2.7 V								"	8 Q		"	- "
	I <sub>OZL</sub>		73	u	2.0 V								"	u								0.4 V	"			-20	μА
	UZE		74	ű		2.0 V							u	"							0.4 V		"	1 Q 2 Q		"	- FO 1
			75	u		2.0 V	2.0 V						"	"						0.4 V	0.4 0		"			,	-
				"			2.0 V													0.4 V				3 Q			<b>↓</b>
			76					2.0 V											0.4 V				"	4 Q		. "	
			77	"					2.0 V				"	"				0.4 V					"	5 Q		"	
			78	ű						2.0 V			u	ű			0.4 V						"	6 Q		"	"
			79	"							2.0 V		и	"		0.4 V							"	7 Q		"	<b>!</b>
			80	"								2.0 V	"	"	0.4 V								"	8 Q		"	
	I <sub>CCH</sub>	3005	81	GND	GND	GND	GND	GND	GND	GND	GND	GND	u	и									"	V <sub>CC</sub>		17	mA
	I <sub>CCL</sub>	"	82	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	"	и									"	V <sub>CC</sub>		23	"
	I <sub>CCZ</sub>	"	83	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	u	и									"	V <sub>CC</sub>		27	"

# MIL-M-38510/371B

TABLE III. Group A inspection for device type 05.

								т.	orminal (	condition			up A insp					; or open)									
Subgroup	Symbol	MIL-STD- 883	Cases 2, R, S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured	Lir	nits	Unit
		method	Test no.	lo O	1D	2D	3D	4D	5D	6D	7D	8D	GND	CLK	8 Q	7 Q	6 Q	5 Q	4 Q	3 Q	2 Q	1 Q	V <sub>cc</sub>	terminal	Min	Max	
2	Same tes	sts, terminal	conditions	, and limit	ts as for	subgroup	p 1, exce	ept T <sub>C</sub> = ·	+125°C	and V <sub>IC</sub>	tests are	omitted	d.														
3	Same tes	sts, terminal	conditions	, and limit	ts as for	subgroup	p 1, exce	ept T <sub>C</sub> = ·	-55°C ar	nd V <sub>IC</sub> te	sts are c	mitted.															
7 <u>3</u> /	Truth	3014	84	B "	В	В	В	В	В	В	В	В	GND "	В	X	X	X	X	X	X	X	X	5.0 V	All	<u>4</u> /	<u>4</u> /	
Tc = 25°C	table tests	"	85 86	"	B A	B A	B A	B A	B A	B A	B A	B A	"	Α "	H "	H "	H "	H "	H "	H "	H "	H "	"	outputs "	"	"	+-
	<u>7</u> /	"	87 88	"	"	"	"	"	"	u	"	"	"	В	" L	"	"	"	" L	"	"	"	"	u	"	u	
		44	89	66	В	В	В	В	В	В	В	В	u	A B	L	L	L	L	L	L	L	L	"	и	"	"	$\vdash \vdash$
		"	90	u	В	В	В	В	В	В	В	В	"	Α	Н	Н	Н	Н	Н	Н	Н	Н	"	"	"	"	
		sts, terminal				subgroup	p 7, exce	ept T <sub>C</sub> =	+125°C	and -55°	C.	1					1		1	1		- OUT	501/	1		1	1.00
9 Tc = 25°C	t <sub>MAX</sub> <u>5</u> /	Fig.4	91	GND "	IN									IN "								OUT	5.0 V	1 Q	30		MHz
			92			IN															OUT			2 Q			
		**	93				IN													OUT			"	3 Q			
		"	94	4				IN					"	"					OUT				"	4 Q			"
		44	95	ű					IN				"	"				OUT					"	5 Q	"		"
		44	96	"						IN			"	"			OUT						"	6 Q	"		"
		"	97	u							IN		"	"		OUT							"	7 Q			"
		"	98	u								IN	"	"	OUT								"	8 Q	"		"
	t <sub>PLH2</sub>	3003 Fig. 4	99	GND	IN								"	66								OUT	"	CLK to 1 Q	4	12	ns
		44	100	u		IN							u	"							OUT		"	CLK to 2 Q	"		"
		44	101	u			IN						"	"						OUT			"	CLK to 3 Q			
		"	102	u				IN					"	"					OUT				"	CLK to 4 Q			"
		44	103	"					IN				u	u				OUT					"	CLK to 5 Q			"
		44	104	и						IN			"	"			OUT						"	CLK to 6 Q			"
		44	105	u							IN		u	ű		OUT							44	CLK to 7 Q	"		"
		44	106	"								IN	"	u	OUT								"	CLK to 8 Q			
	t <sub>PHL2</sub>	44	107	"	IN								"	и								OUT	"	CLK to 1 Q	"		"
		44	108	"		IN							"	"							OUT		"	CLK to 2 Q	"		"
		44	109	"			IN						"	"						OUT			"	CLK to 3 Q			"
		44	110	u				IN					44	и					OUT				"	CLK to 4 Q	"	"	"
		"	111	и					IN				66	66				OUT					"	CLK to 5 Q	-	"	"
		"	112	и						IN			и	и			OUT						"	CLK to 6 Q	"	"	"
		u	113	и							IN		и	и		OUT							"	CLK to 7 Q	-	"	"
		"	114	4								IN	"	"	OUT								"	CLK to 8 Q			"

Terminal conditions (pins not designated may be high  $\geq$  2.0 V; or low  $\leq$  0.8 V; or open). Subgroup Symbol MIL-STD-Cases 2 3 4 5 10 11 12 13 14 15 16 17 18 19 20 Measured Limits Unit 2, R, S 883 method 2D 3D 4D Min Max Test no. 1D 5D 6D 7D 8D GND CLK  $V_{CC}$ terminal <u>oc</u> 8 Q 7 Q 1 Q 6 Q 5 Q 4 Q 3 Q 2 Q GND OUT 5.0 V 9 3003 115 IN 5.0 V 1/ 18 ns OC to 1 Q  $Tc = 25^{\circ}C$ Fig. 4 116 5.0 V OUT OC to 2 Q 117 5.0 V OUT OC to 3 Q OUT 118 5.0 V OC to 4 Q 119 5.0 V OUT OC to 5 Q 120 5.0 V OUT OC to 6 Q 121 5.0 V OUT OC to 7 Q 122 5.0 V OUT OC to 8 Q 123 GND OUT  $t_{\mathsf{PZH}}$ OC to 1 Q 124 GND OUT  $\overline{OC}$  to 2  $\overline{Q}$ 125 GND OUT OC to 3 Q GND OUT 126 OC to 4 Q 127 GND OUT OC to 5 Q GND OUT 128 OC to 6 Q GND OUT 129 OC to 7 Q 130 GND OUT OC to 8 Q 131 5.0 V OUT 8  $t_{\text{PLZ}}$ OC to 1 Q OUT 132 5.0 V OC to 2 Q OUT 133 5.0 V OC to 3 Q 134 5.0 V OUT OC to 4 Q 135 5.0 V OUT OC to 5 Q 136 5.0 V OUT OC to 6 Q 137 5.0 V OUT OC to 7 Q 5.0 V 138 OUT OC to 8 Q GND OUT 139  $t_{PLZ}$ 2 13 OC to 1 Q 140 GND OUT OC to 2 Q GND OUT 141 OC to 3 Q GND 142 OUT OC to 4 Q 143 GND OUT OC to 5 Q GND 144 OUT OC to 6 Q GND OUT 145 OC to 7 Q GND OUT  $\overline{\text{OC}}$  to 8  $\overline{\text{Q}}$ 

MIL-M-38510/371B

# MIL-M-38510/371B

2

3

10

15

## TABLE III. Group A inspection for device type 05.

											I / LDEL	- III. <u>Cica</u>	ip / tillop	JOHOTT TOT	action ty	<del>pc 00</del> .											
									Termina	l condition	ons (pins	not desig	nated ma	ay be higl	$h \ge 2.0 V$ ;	or low $\leq 0$	0.8 V; or o	pen).									
Subgroup	Symbol	MIL-STD-		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured	Lir	nits	Unit
		883	2, R, S																								
		method	Test no.	oc	1D	2D	3D	4D	5D	6D	7D	8D	GND	CLK	8 Q	7 Q	6 Q	5 Q	4 Q	3 Q	2 Q	1 Q	V <sub>CC</sub>	terminal	Min	Max	
10	f <sub>MAX</sub>												1							ı					30		MHz
$Tc = 25^{\circ}C$																										<u> </u>	
	t <sub>PHL2</sub>																								4	15	ns
	t <sub>PLH2</sub>																								"	"	u
		_						_																	<b> </b>		и
	t <sub>PZL</sub>	Same tests	s and termi	inal cond	litions as	for subgr	oup 7, exc	ept T <sub>C</sub> =	+125°C.																"	21	
	tozu																								"	"	u

Same tests, terminal conditions, and limits as for subgroup 10, except T<sub>C</sub> = -55°C.

<u>1</u> /	Apply	1	<del></del>	− 3.0 V −5.5 V
			<u> </u>	0.0 V pulse prior to test

- 2/ Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit output current I<sub>os</sub>.
- 3/ Tests shall be performed in sequence, attributes data only.
- 4/ Output voltages shall be either: (1) H  $\geq$  2.4 V minimum and L  $\leq$  0.4 V maximum when using a high-speed checker double comparator; (2) H  $\geq$  1.5 V and L  $\leq$  1.5 V when using high-speed checker single comparator.
- 5/ f<sub>MAX</sub> limit is the frequency of the input pulse. The output frequency shall be one-half the input frequency.
- 6/ I<sub>IL</sub> limits shall be as follows:

 $t_{PLZ}$ 

 $t_{PHZ}$ 

	Min/M	ax limits in (μA) for c	ircuit
Test	Α	В	С
I <sub>IL3</sub>	0/-200	0/-200	0/-200

 $\underline{7}$ / A = 3.0 V minimum; B = 0.0 V or GND.

TABLE III. Group A inspection for device type 06.

					Terminal of	conditions	s (pins not	designate	d may be	e high ≥ 2	2.0 V; or I	ow ≤ 0.8 \	/; or ope	n).					
Subgroup	Symbol	MIL-STD- 883	Cases 3	2	3	4	5	6	7	9	10	11	12	13	14		Lin	nits	Unit
		method	Cases	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			_ L, K																
			Test no.	1 CLR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
1	V <sub>OH</sub>	3006	1	2.0 V	0.8 V	2.0 V									GND	1Q1	2.4		V
$Tc = 25^{\circ}C$		"	2	"	"		2.0 V	0.01/							"	1Q2	"		"
		"	3 4	"	"			2.0 V	2.0 V						"	1Q3 1Q4	"		"
		"	5						2.0 V	2.0 V				0.8 V	и	2Q1	"		"
		u	6								2.0 V			и	и	2Q2	и		"
		"	7									2.0 V		"	"	2Q3	"		"
	V	3007	9	2.0 V	0.8 V	0.8 V							2.0 V		"	2Q4 1Q1	-	0.4 V	"
	V <sub>OL</sub>	3007	10	2.0 V	0.8 V	0.8 V	0.8 V								и	1Q1		0.4 V	"
		"	11	"	"		0.0 ¥	0.8 V							и	1Q3		"	"
		u	12	u	"				0.8 V						и	1Q4			"
		"	13							0.8 V	0.01/			0.8 V	"	2Q1		"	-
		"	14 15								0.8 V	0.8 V		"		2Q2 2Q3		"	-
		"	16		1	1	1		<b> </b>	<b> </b>	-	0.0 V	0.8 V	"	и	2Q3 2Q4		-	
		и	17	0.8 V	0.8 V										и	1Q1		u	"
		"	18	"	"										u	1Q2			"
		"	19 20	"	"										"	1Q3 1Q4			"
		"	21											0.8 V	и	2Q1			"
		u	22											"	и	2Q2			"
		u	23											и	ű	2Q3		"	"
		"	24											"	"	2Q4			"
	V <sub>IC</sub>		25	-18 mA												1 CLR		-1.5	
			26		-18 mA										"	1 OC		"	"
			27			-18 mA									и	1D1		"	"
			28				-18 mA								и	1D2		**	"
			29					-18 mA	40						u	1D3		"	"
			30 31						-18 mA	-18 mA					"	1D4 2D1		"	"
			32							-101117	-18 mA				и	2D2		**	"
			33									-18 mA			и	2D3		"	"
			34										-18 mA		"	2D4		u	"
			35											-18 mA		2 OC			
			36												"	2 CLR		"	"
			37												и	2CLK		**	"
			38												и	1CLK		"	"
	I <sub>IL3</sub>	3009	39	0.4 V											44	1 CLR	<u>7</u> /	<u>7</u> /	μΑ
		"	40		0.4 V	-									"		"	"	"
		"			ļ ·	0			ļ						u	1 OC	"	"	"
		"	41 42		<del>                                     </del>	0.4 V	0.4 V		<del>                                     </del>	<del>                                     </del>					"	1D1 1D2	"	"	"
		"	42		<b> </b>	<u> </u>	U.4 V	0.4 V							и	1D2 1D3	и	и	"
		"	44						0.4 V						"	1D4	u	u	"
		u	45							0.4 V					и	2D1	"	"	"
		"	46		-				-		0.4 V	0.4 V			u	2D2 2D3	"	"	"
		"	47 48	-					-	-		U.4 V	0.4 V		"	2D3 2D4	"	и	"
		u	49		1	1	1		<b> </b>	<b> </b>	1		∪. <del>+</del> v	0.4 V	и		"	"	"
		"			ļ						ļ				и	2 OC	"	"	**
			50	<u> </u>	<u></u>	<u> </u>	<u> </u>		<u></u>	<u> </u>	L_	<u> </u>				2 CLR		<u>_</u>	
		u	51												и	2CLK	и	и	"
	1	"	52												"	1CLK	"	"	"

					Tormi	nal canditio					ice type 06		or open)						
Subgroup	Symbol	MIL-STD-	Cases	16	17	18	19	20	21	be nign ≥ 2 23	2.0 V; or lov 24	v ≤ 0.8 v; 0 25	26	27	28		Lin	nits	Unit
		883 method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 CLR	2CLK	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
1	V <sub>OH</sub>	3006	1										-1.0 mA	<u>2</u> /	4.5 V	1Q1	2.4		V
Tc = 25°C		"	2									-1.0 mA		u	"	1Q2			
		"	3								-1.0 mA			"	u	1Q3			
		"	4 5	201/	2/				-1.0 mA	-1.0 mA					"	1Q4 2Q1	-		-
		"	6	2.0 V	<u>2</u> /			-1.0 mA							"	2Q1 2Q2			
		u	7	u	"		-1.0 mA	-1.0 111/4							"	2Q3			
		"	8	"	"	-1.0 mA									"	2Q4			"
	$V_{OL}$	"	9										12 mA	<u>2</u> /	"	1Q1		0.4	"
		"	10								40. 4	12 mA		"	"	1Q2		"	- '
		"	11 12							12 mA	12 mA				"	1Q3 1Q4		"	<u> </u>
		"	13	2.0 V	<u>2</u> /				12 mA	12 MA					"	2Q1		"	
		"	14	# "	"			12 mA	12 110 (						"	2Q2		"	
		u	15	u	"		12 mA								"	2Q3		"	"
		ii .	16	u	и	12 mA									ii .	2Q4		"	"
		"	17										12 mA		u	1Q1		"	"
			18								12 mA	12 mA				1Q2		- "	
		"	19 20							12 mA	12 MA				"	1Q3 1Q4		"	"
		"	21	0.8 V					12 mA	12 11/3					"	2Q1		"	"
		u	22	"				12 mA							"	2Q2		"	"
		ii .	23	u			12 mA								ii .	2Q3		"	"
		"	24	"		12 mA									u	2Q4		"	"
	$V_{IC}$		25													1 CLR		-1.5	
			26												u	1 OC		"	"
			27												u	1D1		"	"
			28												u	1D2		"	"
			29 30												"	1D3 1D4		"	"
			31												и	2D1		"	"
			32												u	2D2		"	"
			33												u	2D3		"	"
			34												"	2D4		"	"
			35												u	2 OC		"	"
			36	-18 mA											u	2 CLR		"	"
			37		-18 mA										"	2CLK		"	и
		0000	38											-18 mA	" 	1CLK	7/		- "
	I <sub>IL3</sub>	3009	39												5.5 V	1 CLR	7/	7/	μΑ
		66	40												"	1 OC	u	"	"
		"	41												и	1D1	и	"	"
		"	42												u	1D2	"	"	"
		"	43 44												и	1D3 1D4	и	"	"
		"	45												"	2D1	u	"	"
		"	46	İ	1	1	İ	1	1	1	1				и	2D2	"	"	"
		"	47												и	2D3	u	"	"
		"	48												u	2D4	u	"	"
		"	49			<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>				"	2 OC	"	"	"
		"	50	0.4 V											u	2 CLR	"	"	"
		ű	51		0.4 V										u	2CLK	u	"	"
		"	52											0.4 V	"	1CLK	и	"	"

TABLE III. Group A inspection for device type 06.

Subgroup	Symbol	MIL-STD- 883	Cases 3	2	3	4	(pins not	6	7	9	10	11	12	13	14		Lir	nits	Un
		method	Cases L, K	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			Test no.	1 CLR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
1	I <sub>IH3</sub>	3010	53	2.7 V											GND	1 CLR		20	μ
c = 25°C		"	54		2.7 V										"	1 OC		"	,
		u	55			2.7 V									"	1D1		и	
		"	56				2.7 V								"	1D2		"	
		"	57					2.7 V							"	1D3		"	-
		"	58		ļ			ļ	2.7 V	0.7.1/	<b> </b>				"	1D4 2D1		"	
		u	59 60							2.7 V	2.7 V				"	2D1 2D2		"	╁
		"	61								2.7 V	2.7 V			"	2D2 2D3		"	+
		u	62									Z.1 V	2.7 V		"	2D3		и	+
		и	63											2.7 V	"			и	+
		и	64												u	2 OC		и	+
																2 CLR			
		"	65												"	2CLK		"	
		"	66												"	1CLK		"	
	I <sub>IH8</sub>		67	7.0 V												1 CLR		100	
		u	68		7.0 V										"	1 OC		"	
		и	69			7.0 V									"	1D1		и	
		u	70				7.0 V								"	1D2		"	
		u	71					7.0 V							"	1D3		u	
		u	72						7.0 V						"	1D4		"	
		u	73							7.0 V					"	2D1		"	
		"	74								7.0 V	7.01/			"	2D2		"	
			75 70									7.0 V	701/			2D3			
		"	76 77		-			-			-		7.0 V	7.0 V	"	2D4		"	+
		u	78											7.0 1	"	2 OC		и	-
		"													"	2 CLR		"	
			79 80												"	2CLK 1CLK		"	
	_	3011 <u>3</u> /	81	5.0 V	GND	5.0 V									"	1Q1	-15	-110	m
	I <sub>0</sub>	3011 <u>3</u> /	82	5.0 V	GND "	5.0 V	5.0 V								"	1Q1	-15	-110	- "
		и	83	"	"		3.0 V	5.0 V							"	1Q2 1Q3	"	"	+-
		u	84	и	и			3.0 V	5.0 V						"	1Q4	"	и	+
		u	85						0.0 V	5.0 V				GND	"	2Q1	"	"	+
		u	86							0.0 1	5.0 V			"	"	2Q2	"	"	+
		u	87									5.0 V		и	"	2Q3	"	и	
		"	88										5.0 V	"	"	2Q4	"	"	
	I <sub>0ZH</sub>		89	5.0 V	5.0 V	5.0 V									"	1Q1		20	μ
			90	"	"		5.0 V								"	1Q2		"	
			91	"	"			5.0 V							"	1Q3		"	
			92	"	u				5.0 V						"	1Q4		"	
			93							5.0 V				5.0 V	"	2Q1		"	
			94								5.0 V	5.01/		"	"	2Q2			
			95	ļ	ļ			<b> </b>		ļ	ļ	5.0 V	E C V	.,	.,	2Q3	<b> </b>		-
	<u> </u>		96 97	5.0 V	5.0 V	GND	-	1	-	<del>                                     </del>		<del>                                     </del>	5.0 V		"	2Q4 1Q1	<del>                                     </del>	-20	+
	I <sub>OZL</sub>		98	5.0 V	5.0 V	GND	GND	<del>                                     </del>		<b> </b>	-	<b> </b>	<b> </b>	<b> </b>	"	1Q1 1Q2	<del>                                     </del>	-20	
			98	"	"		GND	GND		<b> </b>	-	<b> </b>	<b> </b>	<b> </b>	"	1Q2 1Q3	<del>                                     </del>	"	+
			100	"	"		-	GND	GND	<del>                                     </del>		<del>                                     </del>	<del>                                     </del>		"	1Q3 1Q4	<del>                                     </del>	"	+
			101	<b> </b>	<del>                                     </del>		-	<del>                                     </del>	CIAD	GND	<del>                                     </del>	<b> </b>	<b> </b>	5.0 V	"	2Q1		и	+
			101		<del>                                     </del>		-	<b>†</b>		CIAD	GND		<b> </b>	3.0 V	"	2Q2	1	"	+
			103		1	1	1	1	1		0.10	GND		"	"	2Q3	1	"	
	1		104	<b>-</b>	+		+	1					GND	"	"	2Q4		и	+

O I	0	MU OTD	0	40	l eminar c	JOHUILIONS	(pins not	Jesignate	u may be	i iligii 2 2	.0 0, 01 1	0W ≤ 0.6 \	7, or oper	07	-00		1.5	-:	Luci
Subgroup	Symbol	MIL-STD- 883	3	16	17	18	19	20	21	23	24	25	26	27	28		Lir	nits	Unit
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 CLR	2CLK	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	1CLK	V <sub>cc</sub>	terminal	Min	Max	
1	I <sub>IH3</sub>	3010	53												GND	1 CLR		20	μΑ
c = 25°C		66	54												"	1 OC		"	"
		u	55												"	1D1		"	"
		"	56												"	1D2		"	"
		u	57												"	1D3		"	"
		ű	58												"	1D4		"	u
		u	59												"	2D1		"	u
		"	60												"	2D2		"	"
		u	61												u	2D3		"	"
		"	62												"	2D4		"	"
		"	63												ű	2 OC		"	"
		"	64	2.7 V											"	2 CLR		"	"
		u	65		2.7 V										u	2CLK		u	"
		и	66											2.7 V	u	1CLK		u	"
	I <sub>IH8</sub>	"	67												"	1 CLR		100	"
		"	68												u	1 OC		и	"
		u	69												"	1D1		"	"
		u	70												"	1D2		"	"
		"	71												"	1D3		"	"
		"	72												"	1D4		"	"
		"	73												"	2D1		"	"
		**	74												"	2D2		"	"
		"	75												"	2D3		"	"
		"	76												"	2D4		"	"
		"	77												"	2 OC		и	"
		"	78	7.0 V											u	2 CLR		и	и
		u	79		7.0 V										"	2CLK		и	и
		u	80		1.0 1									7.0 V	"	1CLK		"	"
	I <sub>0</sub>	3011 <u>3</u> /	81										2.25 V	<u>2</u> /	"	1Q1	-15	-110	mA
	.0	"	82									2.25 V	L.L0 1	"	"	1Q2	"	"	"
		"	83								2.25 V			"	"	1Q3	"	"	"
		"	84							2.25 V				"	"	1Q4	"	"	"
		"	85	5.0 V	2/				2.25 V						"	2Q1	"	"	"
	1	и	86	u	и			2.25 V							"	2Q2	"	"	"
		"	87	"	"		2.25 V		1						"	2Q3	"	"	"
		"	88	"	"	2.25 V									"	2Q4	"	"	"
	I <sub>OZH</sub>		89										2.7 V	<u>2</u> /	"	1Q1		20	μА
	1		90									2.7 V		"	"	1Q2		"	"
			91								2.7 V			"	u	1Q3			
			92							2.7 V				"	ii .	1Q4		tt	"
	1		93	5.0 V	<u>2</u> /				2.7 V						"	2Q1		"	"
			94	"	"			2.7 V							"	2Q2		"	"
	1		95	"	"	1	2.7 V		ļ						"	2Q3		"	"
			96	"	u	2.7 V									"	2Q4		"	u
	11		97		ļ				ļ				0.4 V	<u>2</u> /	"	1Q1		-20	"
	I <sub>OZL</sub>		98	l	1	<u> </u>			<u> </u>			0.4 V		"	"	1Q2		и	"
	10ZL							1	1	1	0.4 V	I	i	44	"			- 44	"
	'0ZL		99								U. T V					1Q3		ļ	-
	10ZL		99 100							0.4 V	0.4 V			u	u	1Q4		u	"
	10ZL		99 100 101	5.0 V	2/				0.4 V	0.4 V	0.4 V			ш	"	1Q4 2Q1		"	"
	102L		99 100	5.0 V	<u>2/</u>		0.4 V	0.4 V	0.4 V	0.4 V	0.4 ¥			и		1Q4			"

MIL-M-38510/371B

					Terminal	CONdition													
ubgroup	Symbol	MIL-STD-	Cases	2	3	4	5	6	7	9	10	11	12	13	14		Lim	its	Un
		883 method	3 Cases	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			L, K Test no.	1 CLR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
1	I <sub>CCH</sub>	3005	105	5.0 V	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	GND	GND	V <sub>cc</sub>		21	m.
c = 25°C		"	106	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	"			29	
	I <sub>CCL</sub>	"	106	GND	5.0 V	GND	GND	GND	GND	GND	GND	GND	GND	5.0 V	"	V <sub>cc</sub>		31	,
2	I <sub>CCZ</sub>			and limite				l	l	l	l		GND	5.0 V		VCC		31	
3		sts, terminal					-					l.							
7 <u>4</u> /	Truth	sts, terminal 3014	108	A A	B as ioi su	B	B	B B	B B	B	B	В	В	В	GND	All	<u>5</u> /	<u>5</u> /	1
c = 25°C	table	"	109	"	"	В	В	В	В	В	В	В	В	В	"	outputs	"	"	
	tests	"	110	и	"	Α	Α	Α	Α	Α	Α	Α	Α	Α	"	"	"	"	
	8/	"	111	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		"	112	и	u	"	"	"	и	"	"	"	u	"	"	"	"	"	
		"	113	"	"	В	В	В	В	В	В	В	В	В	"	"	"	"	
		"	114	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		"	115	В	и	"	"	и	u	"	"	"	"	"	"	u	"	"	$\vdash$
		"			"	^	Λ.		_	^	^	Α	Α	Λ.	"	"	"	"	+-
		"	116	"	"	Α "	Α "	Α "	Α "	Α "	A	Α "	Α "	Α "	"	"	"	"	<u> </u>
			117																
		"	118	Α	"	"	"	"	"	"	"	**	"	"	ű	"	"	"	
		"	119	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		"	120	"	"	В	В	В	В	В	В	В	В	В	"	"	"	"	
											Α		Α		66	"	"	"	
		u	121	"	"	Δ	Δ	Ι Δ	- Δ										
		"	121	"	"	Α "	Α "	Α "	Α "	Α "	"	Α "	"	Α "	"	"	"	"	1
8	Same tes	" sts, terminal	122 123 conditions	Bs, and limits	" s as for su	" ibgroup 7	"	u	"	u	"				66	44	и	u	
9	f <sub>MAX</sub>	и	122 123 conditions	" B	u	"	" , except T	u	"	u	"					" 1Q1	30	66	
9		" sts, terminal	122 123 conditions 124 125	Bs, and limits	" s as for su	" ibgroup 7	"	" " c = +125°	"	u	"				" " GND	" 1Q1 1Q2	30	"	
9	f <sub>MAX</sub>	" sts, terminal	122 123 conditions 124 125 126	Bs, and limits	" s as for su	" ibgroup 7	" , except T	u	" C and -55	u	"				" " GND	1Q1 1Q2 1Q3	30	65	
9	f <sub>MAX</sub>	" sts, terminal	122 123 conditions 124 125 126 127	Bs, and limits	" s as for su	" ibgroup 7	" , except T	" " c = +125°	"	" " 5°C.	<i>u</i>			11	GND "	" 1Q1 1Q2 1Q3 1Q4	30	66	
9	f <sub>MAX</sub>	sts, terminal	122 123 conditions 124 125 126 127 128	Bs, and limits	" s as for su	" ibgroup 7	" , except T	" " c = +125°	" C and -55	u	66				GND  " " " "	" 1Q1 1Q2 1Q3 1Q4 2Q1	30 "	66	
9	f <sub>MAX</sub>	sts, terminal	122 123 conditions 124 125 126 127 128 129	Bs, and limits	" s as for su	" ibgroup 7	" , except T	" " c = +125°	" C and -55	" " 5°C.	IN	ii		11	GND  " " " " " " " " "	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2	30 "	66	
9	f <sub>MAX</sub>	sts, terminal	122 123 conditions 124 125 126 127 128 129 130	Bs, and limits	" s as for su	" ibgroup 7	" , except T	" " c = +125°	" C and -55	" " 5°C.	66		a	GND  "	" " " " " " " " " " " " " " " " " " "	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3	30 " " " " "	и	
9	f <sub>MAX</sub>	sts, terminal	122 123 conditions 124 125 126 127 128 129	Bs, and limits	" s as for su	" ibgroup 7	" , except T	" " c = +125°	" C and -55	" " 5°C.	66	ii		11	GND  " " " " " " " " "	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2	30 "	"	
9	f <sub>MAX</sub>	Fig.4  ""  ""  ""  ""  ""  ""  ""  ""  ""	122 123 conditions 124 125 126 127 128 129 130	Bs, and limits	" s as for su	" ibgroup 7	" , except T	" " c = +125°	" C and -55	" " 5°C.	66	ii	a	GND  "	" " " " " " " " " " " " " " " " " " "	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3	30 " " " " "	19	
9	f <sub>MAX</sub> 5/	sts, terminal	122 123 conditions 124 125 126 127 128 129 130 131	B s, and limits	s as for su	" ubgroup 7	" , except T	" " c = +125°	" C and -55	" " 5°C.	66	ii	a	GND  "	" " " " " " " " " " " " " " " " " " "	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4	30 "" ""		
9	f <sub>MAX</sub> 5/	Fig.4  ""  ""  ""  ""  ""  ""  ""  ""  ""	122 123 conditions 124 125 126 127 128 129 130 131	B s, and limits	s as for su	" ubgroup 7	" " 7, except T <sub>0</sub>	" " c = +125°	" C and -55	" " 5°C.	66	ii	a	GND  "	" " " " " " " " " " " " " " " " " " "	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1	30 "" ""		
9	f <sub>MAX</sub> 5/	# # # # # # # # # # # # # # # # # # #	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134	B s, and limits	s as for su GND  " " GND  " GND  " "	" ubgroup 7	" " 7, except T <sub>0</sub>	" " = +125°\" IN	" C and -55	" " " " " " " " " " " " " " " " " " "	66	ii	a	GND "	GND  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2	30 "" ""		
9	f <sub>MAX</sub> 5/	u u u sts, terminal Fig.4 u u u u u u u u u u u u u u u u u u u	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135	B s, and limits	s as for su GND  " " GND  " GND  " "	" ubgroup 7	" " 7, except T <sub>0</sub>	" " = +125°\" IN	" C and -55	" " 5°C.	IN	ii	a	GND  "	GND  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2	30 "" ""		
9	f <sub>MAX</sub> 5/	u u u sts, terminal Fig.4 u u u u u u u u u u u u u u u u u u u	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136	B s, and limits	s as for su GND  " " GND  " GND  " "	" ubgroup 7	" " 7, except T <sub>0</sub>	" " = +125°\" IN	" C and -55	" " " " " " " " " " " " " " " " " " "	66	IIN	a	GND "	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q3	30 "" ""		1
9	f <sub>MAX</sub> 5/	u u u sts, terminal Fig.4 u u u u u u u u u u u u u u u u u u u	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137	B s, and limits	s as for su GND  " " GND  " GND  " "	" ubgroup 7	" " 7, except T <sub>0</sub>	" " = +125°\" IN	" C and -55	" " " " " " " " " " " " " " " " " " "	IN	ii	IN	GND "	GND  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q3 1 CLR to 1Q4 2 CLR to 2Q1	30 "" ""		r
9	f <sub>MAX</sub> 5/	u u u sts, terminal Fig.4 u u u u u u u u u u u u u u u u u u u	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137	B B s, and limits	GND  GND  GND  GND  GND  GND  GND	" " " " " " " " " " " " " " " " " " "	" " 7, except T <sub>0</sub>	" " = +125°\" IN	" C and -55	" " " " " " " " " " " " " " " " " " "	IN	IIN	a	GND "	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q3 1 CLR to 2Q2 2 CLR to 2Q2 2 CLR to 2Q3 2 CLR to 2Q4	30 4 4 4 4 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4	19	r
9	f <sub>MAX</sub> 5/	u u u sts, terminal Fig.4 u u u u u u u u u u u u u u u u u u u	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137	B s, and limits	s as for su GND  " " GND  " GND  " "	" ubgroup 7	", except T <sub>0</sub>	" " = +125°\" IN	" C and -55	" " " " " " " " " " " " " " " " " " "	IN	IIN	IN	GND "	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	101 102 103 104 201 202 203 204 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q2 2 CLR to 2Q1 2 CLR to 2Q1 2 CLR to 2Q2 2 CLR to 2Q3 2 CLR to 2Q3 1 CLR to 1Q4	30 "" ""		r
9	f <sub>MAX</sub> 5/	u u u sts, terminal Fig.4 u u u u u u u u u u u u u u u u u u u	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138	B B s, and limits	GND  GND  GND  GND  GND  GND  GND	" " " " " " " " " " " " " " " " " " "	" " 7, except T <sub>0</sub>	"C = +125°	" C and -55	" " " " " " " " " " " " " " " " " " "	IN	IIN	IN	GND "	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q4 2 CLR to 2Q1 2 CLR to 2Q1 2 CLR to 2Q1 1 CLR to 2Q1 1 CLR to 2Q1 1 CLR to 1Q4 1 CLR to 1Q4 1 CLR to 1Q4	30 4 4 4 4 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4	19	r
9	f <sub>MAX</sub> 5/	u u u sts, terminal Fig.4 u u u u u u u u u u u u u u u u u u u	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139	B B s, and limits	GND  GND  GND  GND  GND  GND  GND	" " " " " " " " " " " " " " " " " " "	", except T <sub>0</sub>	" " = +125°\" IN	" "C and -56	" " " " " " " " " " " " " " " " " " "	IN	IIN	IN	GND "	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q2 2 CLR to 2Q1 2 CLR to 2Q2 2 CLR to 2Q3 2 CLR to 2Q4 1CLK to 1Q1	30 4 4 4 4 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4	19	r
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142	B B s, and limits and	GND  GND  GND  GND  GND  GND  GND  GND	" " " " " " " " " " " " " " " " " " "	", except T <sub>0</sub>	"C = +125°	" C and -55	" " " " " " " " " " " " " " " " " " "	IN	IIN	IN	GND  GND  GND  GND  GND  GND	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	101 102 103 104 201 202 203 204 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 2Q1 2 CLR to 2Q1 2 CLR to 2Q2 2 CLR to 2Q2 2 CLR to 2Q2 1 CLR to 1Q3 1 CLK to 1Q4 1 CLK to 1Q4 1 CLK to 1Q4 1 CLK to 1Q4 1 CLK to 1Q4 1 CLK to 1Q4 1 CLK to 1Q4	30 4 4 4 4 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4	19 " " " " " " " " " " " " " " " " " " "	r
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144	B B s, and limits and	GND  GND  GND  GND  GND  GND  GND  GND	" " " " " " " " " " " " " " " " " " "	", except T <sub>0</sub>	"C = +125°	" "C and -56	" " " " " " " " " " " " " " " " " " "	IN 3.5 V	IIN	IN	GND "	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q2 2 CLR to 2Q1 2 CLR to 2Q1 2 CLR to 2Q1 2 CLR to 2Q2 1 CLR to 1Q3 1 CLR to 1Q4 2 CLR to 2Q1 2 CLR to 2Q1 1 CLK to 1Q3 1 CLK to 1Q4 2 CLR to 2Q2 2 CLR to 2Q3 1 CLK to 1Q4 1 CLK to 1Q1 1 CLK to 1Q3 1 CLK to 1Q4 1 CLK to 1Q3	30 4 4 4 4 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4	19 " " " " " " " " " " " " " " " " " " "	n
	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145	B B s, and limits and	GND  GND  GND  GND  GND  GND  GND  GND	" " " " " " " " " " " " " " " " " " "	", except T <sub>0</sub>	"C = +125°	" "C and -56	" " " " " " " " " " " " " " " " " " "	IN	" " IN 3.5 V	IN	GND  GND  GND  GND  GND  GND  GND  GND	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	101 102 103 104 201 202 203 204 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q2 2 CLR to 2Q1 2 CLR to 2Q1 2 CLR to 2Q2 1 CLR to 1Q4 2 CLR to 1Q4 2 CLR to 1Q4 1 CLK to 1Q4 2 CLR to 1Q4 2 CLR to 2Q2 2 CLR to 2Q2 2 CLR to 2Q3 2 CLR to 2Q4 1 CLK to 1Q4 1 CLK to 1Q4 2 CLR to 2Q4 2 CLR to 2Q3 2 CLR to 2Q4 1 CLK to 1Q4 2 CLR to 2Q4 1 CLK to 1Q4 2 CLR to 2Q4 2 CLR to 2Q4 2 CLR to 2Q4 2 CLR to 2Q4 2 CLR to 2Q4 2 CLR to 2Q4 2 CLR to 2Q4	30 4 4 4 4 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4	19 " " " " " " " " " " " " " " " " " " "	n
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144	B B s, and limits and	GND  GND  GND  GND  GND  GND  GND  GND	" " " " " " " " " " " " " " " " " " "	", except T <sub>0</sub>	"C = +125°	" "C and -56	" " " " " " " " " " " " " " " " " " "	IN 3.5 V	IIN	IN	GND  GND  GND  GND  GND  GND	GND  4  4  4  4  4  4  4  4  4  4  4  4  4	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q2 2 CLR to 2Q1 2 CLR to 2Q1 2 CLR to 2Q1 2 CLR to 2Q2 1 CLR to 1Q3 1 CLR to 1Q4 2 CLR to 2Q1 2 CLR to 2Q1 1 CLK to 1Q3 1 CLK to 1Q4 2 CLR to 2Q2 2 CLR to 2Q3 1 CLK to 1Q3 1 CLK to 1Q3 1 CLK to 1Q4 1 CLK to 1Q1 1 CLK to 1Q3	30 4 4 4 4 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4	19 " " " " " " " " " " " " " " " " " " "	

Subgroup	Symbol	MIL-STD-	Cases	16	17	18	ns (pins no	20	21	23	24	25	26	27	28		Lim	its	Ur
		883 method	Cases	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			L, K Test no.	2 CLR	2CLK	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	1CLK	V <sub>cc</sub>	terminal	Min	Max	
1 c = 25°C	I <sub>CCH</sub>	3005	105	5.0 V	<u>2</u> /									<u>2</u> /	5.5 V	V <sub>CC</sub>		21	m
10 - 20 0	I <sub>CCL</sub>	"	106	GND	"									"	u	V <sub>CC</sub>		29	
	I <sub>CCZ</sub>	ű	107	"	ű									"	и	V <sub>CC</sub>		31	
2	Same tes	sts, terminal	conditions	s, and limits	s as for su	bgroup 1	, except T	c = +125°	C and V <sub>I</sub>	tests ar	e omitted	ı.							
3	Same tes	sts, terminal	conditions	s, and limits	s as for su	ıbgroup 1	, except T	<sub>0</sub> = -55°C	and V <sub>IC</sub> t	ests are	omitted.								
7 <u>4</u> / c = 25°C	Truth table	3014	108 109	Α "	B A	X L	X L	X L	X L	X L	X L	X L	X L	B A	5.0 V	All outputs	<u>5</u> / "	<u>5</u> /	
	tests	"	110	"	Α	"	"	"	"	"	"	"	"	Α	"	u	"	"	
	8/	и	111	ű	В	"	"	"	"	"	"	"	"	В	"	"	"	"	
	Γ	и	112	ű	Α	Н	Н	Н	Н	Н	Н	Н	Н	Α	"	"	"	"	
		"	113	"	Α	"	"	"	"	"	"	"	и	Α	"	"	"	"	I
		"	114	"	В	"	"	"	"	"	"	"	"	В	"	"	"	"	
		"	115	В	"	L	L	L	L	L	L	L	L	"	u	"	ii .	"	
		66	116	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		"	117	"	Α	"	"	"	"	"	"	"	"	Α	"	"	"	"	
		"	118	Α	"	"	"	"	"	"	"	"	"	"	"	"	"	"	L
			119		"	Н	Н	Н	Н	Н	Н	Н	Н	"	"	u		"	L
							L	l L	L	L	L	L	L		**	"		"	_
		"	120	"	-	L													
		u u	121	"	В	L	L	L	L	L	L	L	L	В	и	"	"	"	<u> </u>
		u u		" " B	B A A	L H L		L H L	L H L	L H L	L H L	H L	H L	B A A	"	11 11	"	"	
8	Same tes	" " sts, terminal	121 122 123	" B	A A	L H L	L H L	L	L	L H L		Н		Α		"			
8 9		и	121 122 123	" B	A A	L H L	L H L	L	L	L H L		Н		Α		"			N
9	f <sub>MAX</sub>	" sts, terminal	121 122 123 conditions	" B	A A	L H L	L H L	L	L	L H L	L	Н	L	A A	"	11	и		N
9	f <sub>MAX</sub>	" sts, terminal	121 122 123 conditions	" B	A A	L H L	L H L	L	L	L H L		H L	L	A A IN	"	" " 1Q1	и		N
9	f <sub>MAX</sub>	" sts, terminal Fig. 4	121 122 123 conditions 124 125	" B	A A	L H L	L H L	L	L	L H L	L	H L	L	A A IN	5.0 V	" " 1Q1 1Q2	30		N
9	f <sub>MAX</sub>	sts, terminal	121 122 123 conditions 124 125 126	" B	A A s as for su	L H L	L H L	L c = +125°	L	L H L	L	H L	L	A A IN	5.0 V "	" " 1Q1 1Q2 1Q3	30		N.
9	f <sub>MAX</sub>	" sts, terminal Fig. 4	121 122 123 conditions 124 125 126 127 128 129	Bs, and limits	A A A S as for su	L H L	L H L	L	L C and -5:	L H L	L	H L	L	A A IN	5.0 V	" " " " " " " " " " " " " " " " " " "	30		N.
9	f <sub>MAX</sub>	sts, terminal	121 122 123 conditions 124 125 126 127 128 129 130	Bs, and limits	A A A S as for su	L H L Ibgroup 7	L H L	L c = +125°	L C and -5:	L H L	L	H L	L	A A IN	5.0 V "	" " " " " " " " " " " " " " " " " " "	30 " " " " " "		N
9	f <sub>MAX</sub>	sts, terminal	121 122 123 conditions 124 125 126 127 128 129 130	Bs, and limits	A A A S as for su	L H L	L H L	L c = +125°	L C and -5:	L H L	L	H L	OUT	A A IN "	5.0 V " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " "	30 " " " " " "		N
9	f <sub>MAX</sub>	sts, terminal Fig. 4  " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130	Bs, and limits	A A A S as for su	L H L Ibgroup 7	L H L	L c = +125°	L C and -5:	L H L	L	H L	L	A A IN	5.0 V "	" " " " " " " " " " " " " " " " " " "	30 " " " " " "		
9	f <sub>MAX</sub> 5/	sts, terminal	121 122 123 conditions 124 125 126 127 128 129 130 131 132	Bs, and limits	A A A S as for su	L H L Ibgroup 7	L H L	L c = +125°	L C and -5:	L H L	OUT	H L	OUT	A A IN "	5.0 V " " " " " " " " " " " "	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4	30 "" "" ""	и	
9	f <sub>MAX</sub> 5/	sts, terminal Fig. 4  " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132	Bs, and limits	A A A S as for su	L H L Ibgroup 7	L H L	L c = +125°	L C and -5:	L H L 5°C.	L	OUT	OUT	A A IN "	5.0 V " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " "	30 "" "" ""	и	
9	f <sub>MAX</sub> 5/	sts, terminal Fig. 4  " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132 133	Bs, and limits	A A S as for su	L H L Ibgroup 7	L H L	L c = +125°	L C and -55	L H L	OUT	OUT	OUT	A A IN "	5.0 V " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " "	30 "" "" ""	и	
9	f <sub>MAX</sub> 5/	sts, terminal Fig. 4  " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 130 131 132 133 134 135	Bs, and limits	A A A S as for su	L H L Ibgroup 7	L H L	OUT	L C and -5:	L H L 5°C.	OUT	OUT	OUT	A A IN "	5.0 V " " " " " " " " " " " "	1Q1 1Q2 1Q3 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q2 2 CLR to 2Q1	30 "" "" ""	и	
9	f <sub>MAX</sub> 5/	sts, terminal Fig. 4  " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 130 131 132 133 134 135 136	3.5 V	A A A S as for su	L H L Ibgroup 7	L H L ', except T,	L c = +125°	L C and -55	L H L 5°C.	OUT	OUT	OUT	A A IN "	6 5.0 V 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1Q1 1Q2 1Q3 1Q4 2Q1 2Q2 2Q3 2Q4 1 CLR to 1Q1 1 CLR to 1Q2 1 CLR to 1Q2 1 CLR to 1Q2 2 CLR to 2Q1	30 "" "" ""	19	
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 130 131 132 133 134 135	3.5 V  IN  IN	A A A S as for su	L H L Ibgroup 7	L H L	OUT	L C and -55	L H L 5°C.	OUT	OUT	OUT	A A IN "	6.0 V	" " " " " " " " " " " " " " " " " " "	30 "" "" ""	19	
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137	3.5 V  IN  IN	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	L H L Ibgroup 7	L H L ', except T,	OUT	L C and -55	L H L 5°C.	OUT	OUT	OUT	A A IN "	6.0 V	" " " " " " " " " " " " " " " " " " "	30 "" "" ""	19	
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137	3.5 V  IN  IN	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	L H L Ibgroup 7	L H L ', except T,	OUT	L C and -55	L H L 5°C.	OUT	OUT	OUT	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	6.0 V	" " " " " " " " " " " " " " " " " " "	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19	
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137	3.5 V  IN  IN	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	L H L Ibgroup 7	L H L ', except T,	OUT	L C and -55	L H L 5°C.	OUT	OUT	OUT	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	5.0 V	" " " " " " " " " " " " " " " " " " "	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19 " " " " " " " " " " " " " " " " " " "	
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143	3.5 V  IN  IN  II	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	L H L Ibgroup 7	L H L ', except T,	OUT	OUT	L H L 5°C.	OUT	OUT	OUT	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	6.0 V	" " " " " " " " " " " " " " " " " " "	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19 " " " " " " " " " " " " " " " " " " "	
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144	3.5 V  IN  IN	IN  IN  IN  IV  IV  IV  IV  IV  IV  IV	L H L Ibgroup 7	L H L ', except T,	OUT	L C and -55	L H L 55°C.	OUT	OUT	OUT	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	5.0 V	" " " " " " " " " " " " " " " " " " "	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19 " " " " " 12 " " " " " " " " " " " " "	
9	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	IN  IN  IN  IN  IN  IN  IN  II  II  II	L H L Ibgroup 7	L H L L /, except T, OUT	OUT	OUT	L H L 55°C.	OUT	OUT	OUT	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	6 0 V	" " " " " " " " " " " " " " " " " " "	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19 " " " " " " " " " " " " " " " " " " "	
	f <sub>MAX</sub> 5/	" " " " " " " " " " " " " " " " " " "	121 122 123 conditions 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144	3.5 V  IN  IN  II	IN  IN  IN  IV  IV  IV  IV  IV  IV  IV	L H L Ibgroup 7	L H L ', except T,	OUT	OUT	L H L 55°C.	OUT	OUT	OUT	IN  IN  IN  IN  IN  IN  IN  IN  IN  IN	6.0 V	" " " " " " " " " " " " " " " " " " "	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19 19 10 11 11 11 11 11 11 11 11 11	

Terminal conditions (pins not designated may be high  $\geq$  2.0 V; or low  $\leq$  0.8 V; or open). Subgroup Symbol MIL-STD-Cases 5 11 12 13 14 Limits Unit 883 method Cases 2 3 8 10 11 12 Measured L, K Test no. 1D1 1D2 1D3 1D4 2D1 2D2 2D3 2D4 GND terminal Min Max 1 CLR 2 OC 1 OC 9 3003 148 3.5 V GND IN GND 1CLK to 1Q1 4 12 ns 1CLK to 1Q2  $Tc = 25^{\circ}C$ Fig. 4 149 IN 1CLK to 1Q3 150 IN 1CLK to 1Q4 151 IN 2CLK to 2Q1 2CLK to 2Q2 GND 152 IN 153 154 IN 2CLK to 2Q3 IN 155 2CLK to 2Q4 3.5 V GND 18 156 IN 1 OC to 1Q1 GND 157 1 OC to 1Q2 158 GND OC to 1Q3 GND 159 1 OC to 1Q4 160 GND IN 2 OC to 2Q1 161 GND 2 OC to 2Q2 162 GND 2 OC to 2Q3 GND 163 2 OC to 2Q4 164 3.5 V IN 5.0 V  $t_{PZH}$ 1 OC to 1Q1 5.0 V 165 OC to 1Q2 5.0 V 166 OC to 1Q3 167 5.0 V 1 OC to 1Q4 168 5.0 V IN 2 OC to 2Q1 169 5.0 V 2 OC to 2Q2 170 5.0 V 2 OC to 2Q3 171 5.0 V 2 OC to 2Q4 GND 3.5 V  $t_{PLZ}$ 172 IN 1 OC to 1Q1 13 GND 173 OC to 1Q2 GND 174 OC to 1Q3 GND 175 OC to 1Q4 176 GND IN 2 OC to 2Q1 177 GND 2 OC to 2Q2 GND 178 2 OC to 2Q3 179 GND 2 OC to 2Q4

MIL-M-38510/371B

TABLE III. Group A inspection for device type 06.

		•					ns (pins no												
Subgroup	Symbol	MIL-STD- 883	Cases 3	16	17	18	19	20	21	23	24	25	26	27	28		Lim	nits	Uni
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 CLR	2CLK	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
9	t <sub>PHL2</sub>	3003	148										OUT	<u>2</u> /	5.0 V	1CLK to 1Q1	4	12	ns
$Tc = 25^{\circ}C$		Fig. 4	149								01.17	OUT		"	"	1CLK to 1Q2 1CLK to 1Q3	"	"	"
		"	150 151					-	-	OUT	OUT			"	"	1CLK to 1Q3 1CLK to 1Q4	"	"	"
		"	152	3.5 V	2/				OUT	001					ű	2CLK to 2Q1	"	"	"
		u	153	ű	"			OUT							"	2CLK to 2Q2	"	и	"
		"	154	"	"	OUT	OUT								"	2CLK to 2Q3	"	"	"
	t <sub>PZL</sub>	"	155 156			OUT							OUT	IN	"	2CLK to 2Q4 1 OC to 1Q1	"	18	"
		"	157									OUT		<u>2</u> /	"	1 OC to 1Q1	"	и	"
		"	158								OUT			"	u	1 OC to 1Q2	u	u	"
		"	159							OUT				и	"	1 OC to 1Q3	"	"	"
		"	160	3.5 V	<u>2</u> /				OUT						"	2 OC to 2Q1	и	"	"
		"	161	"	"			OUT							u	2 OC to 2Q2	"	и	"
		"	162	"	"		OUT								"	2 OC to 2Q3	"	"	41
		"	163	"	u	OUT									и	2 OC to 2Q4	"	и	,
	t <sub>PZH</sub>	"	164										OUT	<u>2</u> /	GND	1 OC to 1Q1	"	"	
		"	165									OUT		"	u	1 OC to 1Q2	"	u	61
		44	166								OUT			"	"	1 OC to 1Q3	"	"	"
		и	167							OUT					"	1 OC to 1Q4	"	и	
		"	168	3.5 V	<u>2</u> /				OUT						"	2 OC to 2Q1	"	"	•
		"	169	и	"			OUT							"	2 OC to 2Q2	"	"	
		"	170	"	"		OUT								"	2 OC to 2Q3	"	"	•
		"	171	ű	ű	OUT									"	2 OC to 2Q4	"	"	
	t <sub>PLZ</sub>	"	172										OUT	<u>2</u> /	"	1 OC to 1Q1	3	13	L.
		"	173									OUT			"	1 OC to 1Q2			L.
			174							OUT	OUT					1 OC to 1Q3			L.
		"	175	251/	2/				OUT	001					"	1 OC to 1Q4	"	"	L.
		"	176 177	3.5 V	<u>2</u> /			OUT	001						"	2 OC to 2Q1	"	u	
		и	177	"	"		OUT	001							"	2 OC to 2Q2	"	и	L.
		"	179	"	"	OUT	001								"	2 OC to 2Q3	"	"	
			119			001										2 OC to 2Q4			1

TABLE III. Group A inspection for device type 06.

					Terminal	condition	ns (pins not	designat	ed may b	e high ≥	2.0 V; or	low ≤ 0.8	V; or op	en).					
Subgroup	Symbol	MIL-STD- 883	Cases 3	2	3	4	5	6	7	9	10	11	12	13	14		Lir	mits	Unit
		method	Cases L, K	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			Test no.	1 CLR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
9	t <sub>PHZ</sub>	3003 Fig. 4	180	3.5 V	IN	5.0 V									GND	1 OC to 1Q1	2	8	ns
Tc = 25°C		"	181	"	"		5.0 V								"	1 OC to 1Q2	"	"	и
		"	182	u	"			5.0 V							"	1 OC to 1Q3	"	"	"
		ű	183	"	"				5.0 V						"	1 OC to 1Q4	"	"	и
		"	184							5.0 V				IN	"	2 OC to 2Q1	"	"	"
		"	185								5.0 V			"	"	2 OC to 2Q2	"	"	"
		"	186									5.0 V		"	"	2 OC to 2Q3	"	"	и
		и	187										5.0 V	"	"	2 OC to 2Q4	"	"	"
10	f <sub>MAX</sub>																30 6	22	MHz
	t <sub>PHL1</sub>																4	15	ns "
	t <sub>PHL2</sub>	Same tests	and term	inal conditi	ions as fo	r subgrou	р 9, ехсер	t T <sub>C</sub> = +12	25°C.								"	"	"
	t <sub>PZL</sub>	1				Ü											"	21	"
	t <sub>PZH</sub>																"	"	"
	t <sub>PLZ</sub>	]															3	15	"
	$t_{PHZ}$																2	10	"
11	Same tes	sts, terminal	conditions	s, and limits	s as for su	ıbgroup 1	0, except	Γ <sub>C</sub> = -55°C	Э.										

TABLE III. Group A inspection for device type 06.

					Terminal	condition	ns (pins not	designat		e high ≥	2.0 V; or	low ≤ 0.8	V; or op						
Subgroup	Symbol	MIL-STD- 883	Cases 3	16	17	18	19	20	21	23	24	25	26	27	28		Lir	nits	Unit
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 CLR	2CLK	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
9	t <sub>PHLZ</sub>	3003 Fig. 4	180										OUT	<u>2</u> /	5.0 V	1 OC to 1Q1	2	8	ns
Tc = 25°C		и	181									OUT		ű	"	1 OC to 1Q2	u	"	"
		и	182								OUT			"	44	1 OC to 1Q3	"	ű	"
		"	183							OUT				"	"	1 OC to 1Q4	"	"	"
		"	184	3.5 V	<u>2</u> /				OUT						"	2 OC to 2Q1	u	"	"
		и	185	ű	"			OUT							44	2 OC to 2Q2	"	ű	"
		"	186	ű	"		OUT								44	2 OC to 2Q3	u	ű	"
		"	187	ű	"	OUT									"	2 OC to 2Q4	u	u	"
10	$f_{MAX}$																30		MHz
	t <sub>PHL1</sub>																6	22	ns
	t <sub>PLH2</sub>	Come teet	and term	inal candit	iono oo fo	r oubarou	n O oveen	+T = 111	DE°C								4 "	15	"
	t <sub>PHL2</sub> Same tests and terminal conditions as for subgroup 9, except T <sub>C</sub> = +125°C.											21	"						
	t <sub>PZL</sub>																"	<u> </u>	"
	t <sub>PZH</sub>	1															3	15	"
	t <sub>PHZ</sub>																2	10	"
11	Same tes	sts, terminal	conditions	, and limit	s as for su	ıbgroup 1	0, except	Γ <sub>C</sub> = -55°C	D.										

MIL-M-38510/371B

1/ Pins not references are N/C.

٠,		T		- 3.0 V <i>-</i> 5.5 V
2/	Apply	ı		
	,		<u> </u>	0.0 V pulse prior to test

- Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit output current I<sub>os</sub>.
- 4/ Tests shall be performed in sequence, attributes data only.
- 5/ Output voltages shall be either: (1) H  $\geq$  2.4 V minimum and L  $\leq$  0.4 V maximum when using a high-speed checker double comparator; (2) H  $\geq$  1.5 V and L  $\leq$  1.5 V when using high-speed checker single comparator.
- 6/ f<sub>MAX</sub> limit is the frequency of the input pulse. The output frequency shall be one-half the input frequency.
- 7/ I<sub>IL</sub> limits shall be as follows:

	Min/Max limits in (μA) for circuit								
Test	Α	В	С						
I <sub>IL3</sub>	0/-200	0/-200	0/-200						

A = 3.0 V minimum; B = 0.0 V or GND.

TABLE III. Group A inspection for device type 07.

		•					ns (pins no												
Subgroup	Symbol	MIL-STD- 883	Cases 3	2	3	4	5	6	7	9	10	11	12	13	14		Lir	nits	Unit
		method	Cases L, K	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			Test no.	1 PR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
1	V <sub>OH</sub>	3006	1	2.0 V	0.8 V	0.8 V									GND	1 Q 1	2.4		V
Tc = 25°C		44	2	ű	"		0.8 V								"	1 Q 2	"		"
		"	3	"	"			0.8 V							"	1 Q 3	"		"
		"	4	"	"				0.8 V						"	1 Q 4	"		"
		"	5							0.8 V				0.8 V	"	2 Q 1	"		"
		"	6								0.8 V			**	"	2 Q 2	"		"
		"	7									0.8 V		**	"	2 Q 3	"		"
		44	8										0.8 V	"	"	2 Q 4	"		"
	V <sub>OL</sub>	3007	9	2.0 V	0.8 V	2.0 V									"	1 Q 1		0.4	"
		"	10	"	"		2.0 V								"	1 Q 2		"	"
		"	11	u	"			2.0 V							"	1 Q 3		66	"
		"	12	u	"				2.0 V						"	1 Q 4		66	"
		"	13							2.0 V				0.8 V	"	2 Q 1		"	"
		u	14								2.0 V			u	"	2 Q 2		44	"
		44	15									2.0 V		и	"	2 Q 3		"	"
		44	16										2.0 V	и	"	2 Q 4		"	"
		44	17	0.8 V	0.8 V										"	1 Q 1		"	"
		"	18	"	"										"	1 Q 2		"	"
		44	19	"	"										"	1 Q 3		"	"
		44	20	"	"										"	1 Q 4		"	"
		"	21											0.8 V	"	2 Q 1		"	"
		"	22											**	"	2 Q 2		"	"
		44	23											"	"	2 Q 3		"	"
		"	24											"	"	2 Q 4		"	"

TABLE III. Group A inspection for device type 07.

Subgroup	Symbol	MIL-STD-	Cases	16	17	18	19	20	21	23	24	25	; or open). 26	27	28		Lir	nits	Uni
9	,	883	3									-							
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 PR	2CLK	2 Q 4	2 Q 3	2 Q 2	2 Q 1	1 Q 4	1 Q 3	1 Q 2	1 Q 1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
1	V <sub>OH</sub>	3006	1										-1.0 mA	<u>2</u> /	4.5 V	1 Q 1	2.4		٧
Tc = 25°C		u	2									-1.0 mA		"	"	1 Q 2	"		
		"	3								-1.0 mA			"	"	1 Q 3	"		
		"	4							-1.0 mA				u	"	1 Q 4	"		,
		"	5	2.0 V	<u>2</u> /				-1.0 mA						"	2 Q 1	"		,
		"	6	u	"			-1.0 mA							u	2 Q 2	"		,
		и	7	u	u		-1.0 mA								u	2 Q 3	"		1
		"	8	u	"	-1.0 mA									"	2 Q 4	"		T .
	V <sub>OL</sub>	3007	9										12 mA	<u>2</u> /	"	1 Q 1		0.4	T
		"	10									12 mA		u	"	1 Q 2		"	
		"	11								12 mA			u	"	1 Q 3		"	1
		"	12							12 mA				u	"	1 Q 4		"	Τ.
		"	13	2.0 V	<u>2</u> /				12 mA						ű	2 Q 1		"	
		"	14	u	"			12 mA							"	2 Q 2		"	Τ.
		и	15	u	"		12 mA								"	2 Q 3		"	+
		и	16	u	"	12 mA									"	2 Q 4		"	+
		и	17										12 mA		и	1 Q 1		"	-
		"	18									12 mA			"	1 Q 2		"	-
		и	19								12 mA				"	1 Q 3		"	,
		и	2							12 mA					и	1 Q 4		"	,
		и	21	0.8 V					12 mA						"	2 Q 1		"	+
		и	22	u				12 mA							u	2 Q 2		"	+
		"	23	u			12 mA								"	2 Q 2 2 Q 3		"	
		"	24	u		12 mA									"	2 Q 3 2 Q 4		"	-

										y be high									
Subgroup	Symbol	MIL-STD- 883	Cases 3	2	3	4	5	6	7	9	10	11	12	13	14		Lin	nits	Unit
		method	Cases L, K	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			Test no.	1 PR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
1	$V_{IC}$		25	-18 mA											GND	1 PR		-1.5	V
Tc = 25°C			26		-18 mA										и	1 OC		"	и
			27			-18 mA									u	1D1		и	"
			28			1011111	-18 mA								"	1D2	1	"	"
			29				10 110 1	-18 mA							u	1D3		и	"
			30						-18 mA						u	1D4		"	и
			31							-18 mA					u	2D1		u	"
			32								-18 mA				"	2D2		"	"
			33									-18 mA			u	2D3		"	"
			34										-18 mA		"	2D4		"	"
			35											-18 mA	u	2 OC		"	и
			36												и	2 PR		"	
			37												"	2CLK		"	"
			38												u	1CLK		u	"
	I <sub>IL3</sub>	3009	39	0.4 V											"	1 PR	<u>7</u> /	<u>7</u> /	μΑ
		"	40		0.4 V										"	1 OC	"	"	"
		"	41			0.4 V									"	1D1	"	"	"
		"	42				0.4 V								u	1D2	"	"	"
		u	43					0.4 V							u	1D3	"	и	"
		"	44						0.4 V						"	1D4	"	и	"
		"	45							0.4 V					"	2D1	"	и	"
		"	46								0.4 V				"	2D2	"	"	"
		"	47									0.4 V	0.417		"	2D3	"	"	"
		"	48										0.4 V	0.41/	"	2D4	"	"	
			49											0.4 V		2 OC			
		"	50												"	2 PR	"	"	"
		"	51												u	2CLK	"	"	"
		"	52												"	1CLK	"	"	"
	I <sub>IH3</sub>	3010	53	2.7 V											"	1 PR		20	μΑ
		"	54		2.7 V										"	1 OC		"	"
		"	55			2.7 V									и	1D1		"	"
		"	56				2.7 V								"	1D2		"	u
		"	57					2.7 V							u	1D3		u	"
		ű	58						2.7 V						"	1D4		"	"
		"	59							2.7 V					"	2D1		"	"
		"	60							ļ	2.7 V	0.71/			"	2D2	<b> </b>	"	"
		"	61									2.7 V	271/		"	2D3		"	"
		"	62 63										2.7 V	2.7 V	"	2D4	-	"	"
		,,												2.1 V		2 OC		L.,	
		"	64												"	2 PR			"
		"	65												"	2CLK	ļ	"	"
	1	"	66			l	l	l		ı		l	I		"	1CLK	1	"	и

0	0	LAU OTD	0				s (pins no								00				1 11-26
Subgroup	Symbol	MIL-STD- 883	Cases 3	16	17	18	19	20	21	23	24	25	26	27	28		Lir	nits	Uni
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 PR	2CLK	2 Q 4	2 Q 3	2 Q 2	2 Q 1	1 Q 4	1 Q 3	1 Q 2	1 Q 1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
1	V <sub>IC</sub>		25												4.5 V	1 PR		-1.5	٧
Tc = 25°C			26												"	1 OC		"	"
			27												"	1D1		"	u
			28												"	1D2		"	"
			29												"	1D3		"	"
			30												"	1D4		"	"
			31												"	2D1		"	"
			32												"	2D2 2D3			
			33												"	2D3 2D4	<u> </u>	"	"
			34 35												"		-	"	"
				10 1											"	2 OC		"	"
			36	-18 mA											"	2 PR		"	"
			37		-18 mA									40 4	"	2CLK	ļ	"	"
	I <sub>IL3</sub>	3009	38 39											-18 mA	5.5 V	1CLK	<u>7</u> /	7/	μA
	ies	"	40												"	1 PR	- "	"	"
		"													"	1 OC	"	"	"
			41		ļ				1						"	1D1 1D2	"	"	
		"	42 43												"	1D2 1D3	"	"	"
		"	44												"	1D3	"	"	"
		"	45												"	2D1	"	"	"
		"	46												"	2D2	"	"	"
		11	47												"	2D3	"	"	"
		"	48												"	2D4	"	"	"
		"	49												44	2 OC	"	"	"
		"	50	0.4 V											"	2 PR	"	"	"
		"	51		0.4 V										"	2CLK	"	"	"
		"	52											0.4 V	"	1CLK	"	"	u
	I <sub>IH3</sub>	3010	53												5.5 V	1 PR		20	μΑ
		"	54												"	1 OC		"	"
		"	55												"	1D1	1	"	"
		"	56												"	1D2	<u> </u>	"	"
		"	57												"	1D3	<b>†</b>	"	"
		"	58		1				1						"	1D4	1	"	"
		"	59												"	2D1		"	"
		u	60												"	2D2		"	"
		"	61												"	2D3		"	"
		"	62												"	2D4	ļ	"	"
		"	63	<u> </u>	<u> </u>										"	2 OC		"	"
		"	64	2.7 V											"	2 PR		"	"
		"	65		2.7 V										"	2CLK		"	"
1		"	66											2.7 V	"	1CLK		"	"

# TABLE III. Group A inspection for device type 07.

Subgroup	Symbol	MIL-STD-	Cases	2	3	4	ns (pins no 5	6	7	be nign ≥ 9	10	11 11	12	13	14		Lin	nits	Unit
Subgroup	Symbol	883	3														LIII	IIIIS	Offic
		method	Cases L, K	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			Test no.	1 PR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
1	I <sub>IH8</sub>	3010	67	7.0 V											GND	1 PR		100	u
Tc = 25°C		"	68		7.0 V										"	1 OC		"	"
		"	69			7.0 V									"	1D1		"	"
		"	70				7.0 V								"	1D2		"	"
		ű	71					7.0 V							"	1D3		"	"
		"	72						7.0 V						"	1D4		"	"
		"	73							7.0 V	701/				"	2D1		"	"
		"	74								7.0 V	701/	1		"	2D2		"	
		"	75 76									7.0 V	7.0 V		"	2D3 2D4		"	"
		"	76 77										7.0 V	7.0 V	"	2 OC		и	"
		и	78												и	2 DC 2 PR		"	"
		u													"			"	"
		"	79 80												"	2CLK 1CLK		"	"
	I <sub>o</sub>	3011 <u>3</u> /	81	5.0 V	GND	GND									"	_	-15	-110	mA
	10	3011 <u>3</u> /		3.0 V	GIND "	GND	ONE								"	1 Q 1	-13	-110	"
			82				GND									1 Q 2			
		44	83	и	"			GND							"	1 Q 3	"	"	"
		"	84	u	"				GND						"	1 Q 4	"	"	"
		"	85							GND				GND	"	2 Q 1	"	"	и
		"	86								GND			"	"	2 Q 2	"	"	"
		"	87									GND		es .	"	2 Q 3	**	"	"
		и	88										GND	"	"	2 Q 4	"	"	"
	I <sub>0ZH</sub>		89	5.0 V	5.0 V	GND									"	1 Q 1		20	μА
			90	u	u		GND								u	1 Q 2		"	"
			91	"	"			GND							u	1 Q 3		"	u
			92	"	"				GND						u	1 Q 4		u	"
			93							GND				5.0 V	u	2 Q 1		"	"
			94								GND			"	"	2 Q 2		"	u
			95									GND		"	"	2 Q 3		"	u
			96										GND	es .	"	2 Q 4		"	"
	I <sub>OZL</sub>		97	5.0 V	5.0 V	5.0 V									u	1 Q 1		-20	"
			98	u	и		5.0 V								и	1 Q 2		и	"
			99	и	"			5.0 V							u	1 Q 3		"	"
			100	и	ш				5.0 V				İ		и	1 Q 4		и	"
			101							5.0 V				5.0 V	"	2 Q 1		"	и
			102								5.0 V			ű	"	2 Q 2		"	и
			103									5.0 V		"	"	2 Q 3		"	"
			104										5.0 V	"	u	2 Q 4		"	"

MIL-M-38510/371B

					Terminal		TABLE III. s (pins not						V; or ope	en).					
Subgroup	Symbol	MIL-STD- 883	Cases	16	17	18	19	20	21	23	24	25	26	27	28		Lin	nits	Unit
		method	3 Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 PR	2CLK	2 Q 4	2 Q 3	2 Q 2	2 Q 1	1 Q 4	1 Q 3	1 Q 2	1 Q 1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
1	I <sub>IH8</sub>	3010	67												5.5 V	1 PR		100	**
Tc = 25°C		u	68												"	1 OC		"	**

Subgroup	Symbol	MIL-STD- 883	Cases 3	16	17	18	19	20	21	23	24	25	26	27	28		Lir	nits	Unit
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 PR	2CLK	2 Q 4	2 Q 3	2 Q 2	2 Q 1	1 Q 4	1 Q 3	1 Q 2	1 Q 1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
1	I <sub>IH8</sub>	3010	67												5.5 V	1 PR		100	"
Tc = 25°C		и	68												"	1 OC		u	"
		u	69												"	1D1		u	и
		"	70 71												"	1D2 1D3		u	"
		u	72												"	1D4		и	и
		"	73												"	2D1		u	"
		u	74 75												"	2D2 2D3		u	u
		и	76												"	2D4		"	u
		и	77												"	2 OC		u	и
		u	78	7.0 V											"	2 PR		"	"
		"	79 80		7.0 V									7.0 V	"	2CLK 1CLK		"	"
	I <sub>0</sub>	3011 <u>3</u> /	81										2.25 V	<u>2</u> /	"	1 Q 1	-15	-110	mA
		и	82									2.25 V		"	"	1 Q 2	ш	"	"
		"	83								2.25 V			u	и	1 Q 3	"	u	и
		u	84							2.25 V				"	"	1 Q 4	"	u	и
		и	85	5.0 V	<u>2</u> /				2.25 V						"	2 Q 1	"	"	"
		и	86	u	"			2.25 V							u	2 Q 2	"	u	"
		и	87	"	"		2.25 V								"	2 Q 3	"	"	и
		и	88	и	"	2.25 V									u	2 Q 4	u	u	"
	I <sub>0ZH</sub>		89										2.7 V	<u>2</u> /	"	1 Q 1		20	μΑ
			90									2.7 V		"	"	1 Q 2		"	"
			91								2.7 V			"	"	1 Q 3		ű	
			92							2.7 V				"	u	1 Q 4		"	"
			93	5.0 V	<u>2</u> /				2.7 V						"	2 Q 1		"	
			94	"	"			2.7 V							"	2 Q 2		"	"
			95	"	"	0.7.1/	2.7 V								"	2 Q 3			
			96	-		2.7 V							0.41/	0/		2 Q 4			"
	I <sub>OZL</sub>		97									0.4 V	0.4 V	<u>2</u> /	"	1 Q 1		-20	"
			98 99								0.4 V	0.4 V		"	"	1 Q 2		"	"
			100							0.4 V	0.4 V			и	и	1 Q 3		и	и
				5.0 V	2/				0.4 V	0.4 V					u	1 Q 4		и	u
			101	5.0 V	<u>2</u> /			0.4 V	U.4 V						"	2 Q 1			ш
			102	"	"		0.4 V	U.4 V							"	2 Q 2		u	и
			103	66	"	0.4 V	0.4 V								"	2 Q 3		"	"
			104			0.4 V										2 Q 4			

TABLE III. Group A inspection for device type 07.

					Terminal		TABLE III. ns (pins no						V; or op	en).					
Subgroup	Symbol	MIL-STD- 883	Cases 3	2	3	4	5	6	7	9	10	11	12	13	14		Lir	nits	Uni
		method	Cases L, K	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			Test no.	1 PR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
1 Tc = 25°C	I <sub>CCH</sub>	3005	105	5.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	V <sub>cc</sub>		21	mA
	I <sub>CCL</sub>	u	106	GND	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	GND	GND	V <sub>cc</sub>		29	"
	I <sub>CCZ</sub>	u	107	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	GND	V <sub>cc</sub>		31	"
2	Same tes	ts, terminal	conditions	, and limits	s as for su	ıbgroup 1	, except T	c = +125°	C and V <sub>I</sub>	tests ar	e omitted	l.							
3		ts, terminal		, and limits		ıbgroup 1	, except T	c = -55°C	and V <sub>IC</sub> to	ests are	omitted.								
7 <u>4</u> /	Truth	3014	108	Α	В	Α	Α	Α	Α	Α	Α	Α	Α	В	GND	All	<u>5</u> /	<u>5</u> /	
Tc = 25°C	table	u	109	ű	"	Α	Α	Α	Α	Α	Α	Α	Α	"	"	outputs	"	"	Ь
	tests	"	110	"	"	В	В	В	В	В	В	В	В	"	"	ű	"	"	Ь—
	<u>8</u> /		111		"	"	"			"		"		"	"	"	"		↓
			112	"	"	"			- "					"	"	"	"		—
		"	113	"	"	Α "	Α "	Α "	Α "	Α "	Α	Α "	Α "	"	"	"	"	"	<u> </u>
		"	114			"						"	"	"	"	"	"		<u> </u>
			115	В	"	"	"	"		"	"		"	"	-			"	
		u	116	ű	"	В	В	В	В	В	В	В	В	"	"	ű	"	"	
		"	117	"	"	"	"	"	"	"	"	"	"	"	"	"	**	"	
		"	118	Α	"	"	"	"	"	"	"	"	"	"	"	u	"	"	
		"	119	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		"	120	u	"	Α	Α	Α	Α	Α	Α	Α	Α	"	"	u	"	"	
		"	121	"	"	В	В	В	В	В	В	В	В	"	"	"	"	"	
		"	122	"	"	"	"	"	"	"	"	"	"	"	"	u	"	"	
		"	123	В	u	"	"	и	u	и	"	"	"	u	"	u	"	"	
8	Same tes	ts, terminal	conditions	, and limits	s as for su	bgroup 7	, except T	c = +125°	C and -5	5°C.									
9 Tc = 25°C	f <sub>MAX</sub> <u>5</u> /	Fig. 4	124	3.5 V	GND	IN									GND	1 Q 1	30		MHz
	_	"	125	u	"		IN								"	1 Q 2	"		"
		и	126	u	u			IN							"	1 Q 3	"		"
		66	127	"	"				IN						"	1 Q 4	"		и
		и	128							IN				GND	"	2 Q 1	"		"
		u	129								IN			"	"	2 Q 2	"		"
		"	130									IN	IN	"		2 Q 3			"
	•	3003	131 132	IN	GND	GND							IIN	-	"	2 Q 4	6	19	ns
	t <sub>PHL1</sub>	Fig 4		IIN "	GND "	GND	ONE								"	1 PR to 1 Q 1		19	"
			133 134	"			GND	GND							"	1 PR to 1 Q 2	"	"	
		u	135	"	"			GIND	GND						"	1 PR to 1 Q 3	"	и	и
		u	136						05	GND				GND	"	1 PR to 1 Q 4 2 PR to 2 Q 1	и	и	"
		и	137								GND			и	"	2 PR to 2 Q 1 2 PR to 2 Q 2	u	"	"
		u	138									GND		"	"	2 PR to 2 Q 3	u	"	"
		и	139										GND	и	"	2 PR to 2 Q 4	"	"	"

					Terminal		TABLE III.						V· or on	en)					
Subgroup	Symbol	MIL-STD- 883	Cases 3	16	17	18	19	20	21	23	24	25	26	27	28		Lir	nits	Unit
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 PR	2CLK	2 Q 4	2 Q 3	2 Q 2	2 Q 1	1 Q 4	1 Q 3	1 Q 2	1 Q 1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
1	I <sub>CCH</sub>	3005	105	5.0 V	<u>2</u> /									<u>1</u> /	5.5 V	V <sub>cc</sub>		21	mA
Tc = 25°C	I <sub>CCL</sub>	u	106	GND	"									"	"	V <sub>CC</sub>		29	"
	I <sub>CCZ</sub>	u	107	GND	"									"	"	V <sub>cc</sub>		31	"
2	Same tes	ts, terminal	conditions	s, and limits	s as for su	ıbgroup 1	, except To	c = +125°	C and V <sub>I</sub>	c tests ar	e omitted	l.							
3		ts, terminal																	
7 <u>4</u> /	Truth	3014	108	Α	В	X	X	Х	X	Х	X	X	Х	В	5.0 V	All	<u>5</u> /	<u>5</u> /	<u> </u>
Tc = 25°C	table	"	109	"	Α	L	L	L	L	L	L	L	L	Α	"	outputs	"	"	<u> </u>
	tests	u	110	"	A	"	"	"	"	"	"	"	"	A	"	"	"	"	<b>↓</b>
	<u>8</u> /	"	111	"	В									В	"	"	"	"	
		"	112	"	A	H	H	H	H	H	H	H	H	A	"	"	"	"	
		"	113	"	A	"	"	"	u	и	"	"	"	A B	"	u	"	"	-
		"	114 115	В	B "	L	L	L	L	L	L	L	L	<u>Б</u> "	"	"	"	"	-
		и	116	"	"	"	"	"	"	"	"	"	"	"	"	u	"	"	
		и	117	"	Α	"	"	"	"	"	"	"	"	Α	"	u	"	"	-
		u	118	Α	"	"	"	"	"	и	"	"	"	"	"	u	"	"	
		"	119	"	"	Н	Н	Н	Н	Н	Н	Н	Н	"	"	u	"	"	
		и	120	"	u	L	Ë	Ĺ	i.	Ĺ	Ĺ	i i	Ľ	u	и	"	"	и	
		u	121	"	В	L	Ĺ	L	Ē	L	L	L	Ĺ	В	"	u	"	u	
		"	122	"	A	H	Н	Н	Н	Н	H	Н	Н	A	"	u	"	**	
		"	123	В	Α	L	L	L	Ĺ	L	L	Ĺ	L	Α	"	u	"	"	
8	Same tes	ts, terminal	conditions	s, and limits	s as for su	bgroup 7	, except T	= +125°	C and -5	5°C.									
9 Tc = 25°C	f <sub>MAX</sub> 5/	Fig. 4	124										OUT	IN	5.0 V	1 Q 1	30		MHz
10 - 20 0	_	и	125									OUT		"	"	1 Q 2	"		"
		"	126								OUT			"	"	1 Q 3	"		"
		u	127							OUT				44	"	1 Q 4	"		"
		"	128	3.5 V	IN				OUT						"	2 Q 1	ű		"
		и	129	"	"			OUT							"	2 Q 2	"		"
		ű	130	u	"		OUT								"	2 Q 3	ű		ű
		"	131	и	"	OUT									"	2 Q 4	"		"
	t <sub>PHL1</sub>	3003 Fig 4	132										OUT	<u>2</u> /	"	1 PR to 1 Q 1	6	19	ns
		u	133									OUT		u	"	1 PR to 1 Q 2	"	u	"
		u	134							OUT.	OUT			"	"	1 PR to 1 Q 3	"	"	"
			135 136	IN	2/				OUT	OUT					"	1 PR to 1 Q 4	"	"	"
		u	136	IIN "	<u>2</u> /			OUT	001						"	2 PR to 2 Q 1	"	"	u
		u	138	и	"		OUT	001							"	2 PR to 2 Q 2	"	"	"
		и	139	и	"	OUT	001								"	2 PR to 2 Q 3	"	"	"
																2 PR to 2 Q 4			

TABLE III. Group A inspection for device type 07.

					Terminal		s (pins no	t designa		e high ≥									
Subgroup	Symbol	MIL-STD- 883	Cases 3	2	3	4	5	6	7	9	10	11	12	13	14		Lim	nits	Unit
		method	Cases	1	2	3	4	5	6	7	8	9	10	11	12	Measured			<del>                                     </del>
			L, K Test no.	1 PR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
9	t <sub>PLH2</sub>	3003	140	3.5 V	GND	IN								200	GND	1011/1 1 - 1	4	12	ns
Tc = 25°C		Fig. 4		u	"		15.1								"	1CLK to 1 Q 1	и	"	
		"	141		"		IN									1CLK to 1 Q 2			
		"	142	"	"			IN								1CLK to 1 Q 3		"	
			143		"				IN						"	1CLK to 1 Q 4			
		"	144							IN				GND	ű	2CLK to 2 Q 1	"	"	"
		"	145								IN			"	"	2CLK to 2 Q 2	"	"	"
		"	146									IN		"	"	2CLK to 2 Q 3	"	"	"
		"	147										IN	"	"	2CLK to 2 Q 4	"	"	"
	t <sub>PHL2</sub>	"	148	3.5 V	GND	IN									"	1CLK to 1 Q 1	"	"	"
		и	149	66	"		IN								"	1CLK to 1 Q 2	"	"	"
		"	150	"	"			IN							"	1CLK to 1 Q 3	"	"	"
		u	151	"	"				IN						и	1CLK to 1 Q 4	"	"	"
		и	152							IN				GND	"	2CLK to 2 Q 1	"	и	и
		u	153								IN			"	"	2CLK to 2 Q 2	и	"	"
		"	154									IN		"	u	2CLK to 2 Q 3	ii .	"	"
		u	155										IN	"	"	2CLK to 2 Q 4	"	"	"
	t <sub>PZL</sub>	u	156	3.5 V	IN	5.0 V									"	1 OC to 1 Q 1	ii .	18	"
		"	157	"	и		5.0 V								и	1 OC to 1 Q 2	"	"	"
		"	158	ű	"			5.0 V							и	1 OC to 1 Q 2	ű	u	"
		и	159	"	"				5.0 V						"	1 OC to 1 Q 4	и	и	"
		"	160							5.0 V				IN	"	2 OC to 2 Q 1	ii .	"	"
		"	161								5.0 V			"	"	2 OC to 2 Q 2	"	"	"
		"	162									5.0 V		и	"		и	и	"
		u	163										5.0 V	и	и	2 OC to 2 Q 3	и	"	"
	t <sub>PZH</sub>	и	164	3.5 V	IN	GND							0.0 1		и	2 OC to 2 Q 4	"	и	"
	чРЕН	"	165	ű.ő v	"	OND	GND								"	1 OC to 1 Q 1	"	и	и
		"	166	"	"		GND	GND							"	1 OC to 1 Q 2	**	"	"
		"		66	"			GND	CND						"	1 OC to 1 Q 3	"	"	
		"	167						GND	CND				INI	"	1 OC to 1 Q 4	"	"	"
			168							GND	ONE			IN "		2 OC to 2 Q 1			
			069								GND					2 OC to 2 Q 2			<u> </u>
		"	170									GND		"	"	2 OC to 2 Q 3	"	"	"
		"	171										GND	"	"	2 OC to 2 Q 4	и	"	"

					Terminal		TABLE III.						V; or op	en).					
Subgroup	Symbol	MIL-STD- 883	Cases 3	16	17	18	19	20	21	23	24	25	26	27	28		Lin	nits	Unit
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 PR	2CLK	2 Q 4	2 Q 3	2 Q 2	2 Q 1	1 Q 4	1 Q 3	1 Q 2	1 Q 1	1CLK	V <sub>cc</sub>	terminal	Min	Max	
9 Tc = 25°C	t <sub>PLH2</sub>	3003 Fig. 5	140										OUT	<u>2</u> /	GND	1CLK to 1 Q 1	4	12	ns
			141									OUT		и	"	1CLK to 1 Q 2	"	"	"
		"	142								OUT			u	"	1CLK to 1 Q 3	"	"	"
		"	143							OUT				"	44	1CLK to 1 Q 4	44	44	"
		"	144	3.5 V	<u>2</u> /				OUT						"	2CLK to 2 Q 1	"	44	"
		"	145	"	"			OUT							"	2CLK to 2 Q 2	"	"	"
		"	146	"	"		OUT								"	2CLK to 2 Q 3	"	44	"
		"	147	ű	и	OUT									"	2CLK to 2 Q 4	"	"	"
	t <sub>PHL2</sub>	"	148										OUT	<u>2</u> /	5.0 V	1CLK to 1 Q 1	"	"	"
			149									OUT		u	"	1CLK to 1 Q 2	u	u	"
		"	150								OUT			"	u	1CLK to 1 Q 3	u	"	"
		"	151							OUT				u	"	1CLK to 1 Q 4	u	u	"
		"	152	3.5 V	<u>2</u> /				OUT						u	2CLK to 2 Q 1	u	"	"
		"	153	"	"			OUT							"	2CLK to 2 Q 2	"	"	"
		"	154	и	"		OUT								"	2CLK to 2 Q 3	"	"	"
		ш	155	"	"	OUT									"	2CLK to 2 Q 4	"	"	"
	t <sub>PZL</sub>	"	156										OUT	<u>2</u> /	"	1 OC to 1 Q 1	"	18	"
		ш	157									OUT		u	"	1 OC to 1 Q 2	"	"	"
		"	158								OUT			"	"	1 OC to 1 Q 3	"	"	"
		"	159							OUT				"	"	1 OC to 1 Q 4	"	"	"
		"	160	3.5 V	<u>2</u> /				OUT						"	2 OC to 2 Q 1	"	"	"
		"	161	u	"			OUT							"	2 OC to 2 Q 2	"	"	"
		"	162	u	"		OUT								"	2 OC to 2 Q 3	"	"	"
		"	163	"	"	OUT									"	2 OC to 2 Q 4	"	"	"
	t <sub>PZH</sub>	"	164										OUT	<u>2</u> /	"	1 OC to 1 Q 1	"	"	"
		"	165									OUT		"	"	1 OC to 1 Q 2	"	"	"
		"	166								OUT			"	"	1 OC to 1 Q 3	"	"	"
		"	167							OUT				u	"	1 OC to 1 Q 4	"	"	"
		"	168	3.5 V	<u>2</u> /				OUT						"	2 OC to 2 Q 1	"	"	"
		и	169	ű	"			OUT							"	2 OC to 2 Q 2	"	"	"
		"	170	ű	и		OUT								"	2 OC to 2 Q 3	и	"	"
		и	171	"	"	OUT									"	2 OC to 2 Q 4	"	"	и

							TABLE III												
Cubaraua	Cumhal	MIL-STD-	Cases	2	Termina 3	l conditio	ns (pins no	t designa 6	ted may	be high ≥ 9	2.0 V; o	r low ≤ 0.8 11	8 V; or o <sub>l</sub> 12	oen). 13	14	ı	Lim	:40	Unit
Subgroup	Symbol	883	3	2	3	4	э	О	′	9	10	11	12	13	14		LIIII	IIIS	Unit
		method	Cases L, K	1	2	3	4	5	6	7	8	9	10	11	12	Measured			
			Test no.	1 PR	1 OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2 OC	GND	terminal	Min	Max	
9 Tc = 25°C	t <sub>PLZ</sub>	3003 Fig. 4	172	3.5 V	IN	5.0 V									GND	1 OC to 1 Q 1	3	13	ns
		и	173	"	"		5.0 V								"	1 OC to 1 Q 2	"	**	"
		"	174	ű	"			5.0 V							"	1 OC to 1 Q 3	"	"	"
		и	175	ű	"				5.0 V						44	1 OC to 1 Q 4	"	"	"
		ű	176							5.0 V				IN	"	2 OC to 2 Q 1	"	u	"
		и	177								5.0 V			"	"	2 OC to 2 Q 2	"	"	"
		ű	178									5.0 V		"	"	2 OC to 2 Q 3	"	"	"
		ű	179										5.0 V	"	"	2 OC to 2 Q 4	"	"	"
	t <sub>PHZ</sub>	u	180	3.5 V	IN	GND										1 OC to 1 Q 1	2	8	"
		"	181	"	"		GND								"	1 OC to 1 Q 2	"	"	"
			182	"	"			GND								1 OC to 1 Q 3			
		u	183	"	"				GND						"	1 OC to 1 Q 4			"
			184							GND	OND			IN "		2 OC to 2 Q 1			"
			185								GND	ONE		"		2 OC to 2 Q 2			"
		"	186									GND	ONE	"	"	2 OC to 2 Q 3	"		"
- 10	,		187										GND			2 OC to 2 Q 4			
10 Tc = 25°C	f <sub>MAX</sub> t <sub>PHL1</sub>																30 6	22	MHz ns
10-23 0	t <sub>PLH2</sub>															•	4	15	"
	t <sub>PHL2</sub>	Same tests	s and term	inal conditi	ions as fo	r subgrou	р 9, ехсер	t T <sub>C</sub> = +12	25°C.							ļ	"	15	66
	t <sub>PZL</sub>																u	21	"
	t <sub>PZH</sub>																"	21	"
	t <sub>PLZ</sub>															ŀ	2	15 10	"
11	t <sub>PHZ</sub> Same te	ests, termina	al condition	ns. and lim	its as for :	subaroup	10. except	T <sub>c</sub> = -55'	°C.									10	<del></del>
	345 10	,	50110101	, α	40 .01	g.cup	. 5, 5,600												

TABLE III. Group A inspection for device type 07.

					T		TABLE II						0.1/	\					
Subgroup	Symbol	MIL-STD-	Cases	16	1 ermina	18	ns (pins no	20	21	be nign ₂ 23	24 2.0 V; 0	r iow ≤ 0.5 25	8 v; or o	pen). 27	28	I	Lir	nits	Unit
Cabgicap	Cymbol	883	3	10		10	10			20		20	20		20			11110	Orme
		method	Cases L, K	13	14	15	16	17	18	19	20	21	22	23	24	Measured			
			Test no.	2 PR	2CLK	2 Q 4	2 Q 3	2 Q 2	2 Q 1	1 Q 4	1 Q 3	1 Q 2	1 Q 1	1CLK	V <sub>CC</sub>	terminal	Min	Max	
9 Tc = 25°C	t <sub>PLZ</sub>	3003 Fig. 4	172										OUT	<u>2</u> /	5.0 V	1 OC to 1 Q 1	3	13	ns
10-20-0		"	173									OUT		u	"	1 OC to 1 Q 2	и	"	"
		"	174								OUT			"	"	1 OC to 1 Q 3	"	"	"
		"	175							OUT				"	"	1 OC to 1 Q 4	"	"	"
		"	176	3.5 V	<u>2</u> /				OUT						"	2 OC to 2 Q 1	и	"	"
		"	177	4	"			OUT							"	2 OC to 2 Q 2	"	"	"
		"	178	и	"		OUT								u	2 OC to 2 Q 3	u	"	"
		"	179	u	"	OUT									"	2 OC to 2 Q 4	"	"	"
	t <sub>PHZ</sub>	"	180										OUT	<u>2</u> /	"	1 OC to 1 Q 1	2	8	"
		"	181									OUT		"	"	1 OC to 1 Q 2	"	"	"
		"	182								OUT			"	"	1 OC to 1 Q 3	"	"	"
		"	183							OUT				"	"	1 OC to 1 Q 4	"	"	"
		"	184	3.5 V	<u>2</u> /				OUT						"	2 OC to 2 Q 1	"	"	"
			185	ű				OUT								2 OC to 2 Q 2	"		"
		"	186	"	"		OUT									2 OC to 2 Q 3	"	"	"
			187	"	"	OUT									"	2 OC to 2 Q 4			
	f <sub>MAX</sub> t <sub>PHL1</sub>	-												30 6	22	MHz ns			
	t <sub>PLH2</sub>	Same tests and terminal conditions as for subgroup 9, except T <sub>C</sub> = +125°C.											4	15	"				
	t <sub>PHL2</sub>												"	15 21	"				
	t <sub>PZH</sub>												"	21	"				
	t <sub>PLZ</sub> t <sub>PHZ</sub>																2	15 10	"
11	Same tests, terminal conditions, and limits as for subgroup 10, except T <sub>C</sub> = -55°C.																		

- 1/ Pins not references are N/C.
- Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit output current I<sub>os</sub>.
- 4/ Tests shall be performed in sequence, attributes data only.
- 5/ Output voltages shall be either: (1) H  $\geq$  2.4 V minimum and L  $\leq$  0.4 V maximum when using a high-speed checker double comparator; (2) H  $\geq$  1.5 V and L  $\leq$  1.5 V when using high-speed checker single comparator.
- 6/ f<sub>MAX</sub> limit is the frequency of the input pulse. The output frequency shall be one-half the input frequency.
- 7/ I<sub>IL</sub> limits shall be as follows:

	Min/Max limits in (μA) for circuit						
Test	Α	С					
I <sub>IL3</sub>	0/-200	0/-200	0/-200				

A = 3.0 V minimum; B = 0.0 V or GND.

### 5. PACKAGING

5.1 <u>Packaging requirements.</u> For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military service's system command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

# 6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

- 6.1 <u>Intended use.</u> Microcircuits conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.
  - 6.2 Acquisition requirements. Acquisition documents should specify the following:
    - a. Title, number, and date of the specification.
    - b. PIN and compliance identifier, if applicable (see 1.2).
    - c. Requirements for delivery of one copy of the conformance inspection data pertinent to the device inspection lot to be supplied with each shipment by the device manufacturer, if applicable.
    - d. Requirements for certificate of compliance, if applicable.
    - e. Requirements for notification of change of product or process to contracting activity in addition to notification to the qualifying activity, if applicable.
    - Requirements for failure analysis (including required test condition of method 5003 of MIL-STD-883), corrective action, and reporting of results, if applicable.
    - g. Requirements for product assurance options.
    - h. Requirements for special carriers, lead lengths, or lead forming, if applicable. These requirements shall not affect the part number. Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.
    - I Requirements for "JAN" marking.
    - i. Packaging Requirements (see 5.1)
- 6.3 <u>Superseding information</u>. The requirements of MIL-M-38510 have been superseded to take advantage of the available Qualified Manufacturer Listing (QML) system provided by MIL-PRF-38535. Previous references to MIL-M-38510 in this document have been replaced by appropriate references to MIL-PRF-38535. All technical requirements now consist of this specification and MIL-PRF-38535. The MIL-M-38510 specification sheet number and PIN have been retained to avoid adversely impacting existing government logistics systems and contractor's parts lists.
- 6.4 <u>Qualification</u>. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List QML-38535 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DSCC-VQ, 3990 E. Broad Street, Columbus, Ohio 43218-3990.

6.5 <u>Abbreviations, symbols, and definitions</u>. The abbreviations, symbols, and definitions used herein are defined in MIL-PRF-38535, MIL-HDBK-1331, and as follows:

f <sub>MAX</sub>	Maximum clock frequency
GND	Ground zero voltage potential
$V_{IN}\;$	Voltage level at an input terminal
V <sub>OC</sub>	Output clamp voltage

- 6.6 <u>Logistic support.</u> Lead materials and finishes (see 3.4) are interchangeable. Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class B (see 1.2.2), lead material and finish A (see 3.4). Longer length leads and lead forming should not affect the part number.
- 6.7 <u>Substitutability.</u> The cross-reference information below is presented for the convenience of users. Microcircuits covered by this specification will functionally replace the listed generic-industry type. Generic-industry microcircuit types may not have equivalent operational performance characteristics across military temperature ranges or reliability factors equivalent to MIL-M-38510 device types and may have slight physical variations in relation to case size. The presence of this information should not be deemed as permitting substitution of generic-industry types for MIL-M-38510 types or as a waiver of any of the provisions of MIL-PRF-38535.

Military device type	Generic-industry type				
01	54ALS74				
02	54ALS109				
03	54AL112A				
04	54ALS574				
05	54ALS576				
06	54ALS874				
07	54ALS876				

6.8 <u>Manufacturers' designation.</u> Manufacturers' circuits which form a part of this specification are designated with an "X" as shown in table IV herein.

TABLE IV. Manufacturers' designation.

	Circuits						
Device	А	В	С				
type	Texas	Motorola	National				
	Instruments		Semiconductor				
01	Х						
02	Х						
03	Х						
04	Х						
05	Х						
06	Х						
07	Х						

6.9 <u>Change from previous issue.</u> Marginal notations are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:

Army - CR

Navy - EC

Air Force - 11

DLA - CC

Review activities:

Army – SM, MI Navy - AS, CG, MC, SH TD

Air Force - 03, 19, 99

Preparing activity: DLA - CC

(Project 5962-2057)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organization and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <a href="www.dodsp.daps.mil">www.dodsp.daps.mil</a>.